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THE green scene

HORTICULTURE IN THE DELAWARE VALLEY
SEPTEMBER • OCTOBER • 1983 $1.50

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Front cover: A cranberry bog. See page 4.
photo by Steve Thompson

Back cover: See page 4.
photo by Steve Thompson

CORRECTION

We regret that Ann Schutt's name was misspelled on page 9 of the July *Green Scene*.

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Horticulture is more than plants

One difference between "nature" and "horticulture" is people. People cultivate, classify, communicate and appreciate.

Horticulture is equally the work of the Grand Sweepstakes winner at the Philadelphia Flower Show and the children's seedlings produced in an egg carton at the Child Care Center.

Horticulture is about the 10-year-old on his knees, examining with a magnifying glass the intricacies of a miniscule flower, and it's about 20 people trooping through mud in the Pine Barrens to see a cluster of an endangered plant. It's about their respect and awe.

Horticulture is hundreds of stories, told by or about the experienced and the novice. In this issue we have a story about young people, a group of young boys and girls putting on their flower show in the suburbs. These children share the common wonder at the miracle of horticulture, whether it's drying flowers, arranging opulent bouquets from their own gardens or creating crafty creatures.

In our assessment of *Green Scene*'s role on the threshold of our twelfth year, we continue to burrow into every nook and cranny of growing, from the great cranberry bogs in New Jersey to the obscure saffron harvests in western Pennsylvania, to the volunteers who help push research forward with their All-America Selection plot at Cylburn Arboretum in Maryland.

Our authors explore details of horticulture in the Delaware Valley and beyond. And of course their stories go beyond *Green Scene*. Just within the last year, five writers whose work has appeared in *Green Scene* have either published books or completed manuscripts to be published: Derek Fell, *Vegetables: How to Select, Grow and Enjoy*, HP Books, Tuscon, Arizona, 1982; Jeff Ball, *Self-Sufficient Urban Garden*, Rodale Press, Emmaus, Pa., 1983; Peter Loewer, *Garden Almanac*, Putnam Group, Perigee Books, New York, September, 1983; Barbara Bruno, *Victorian Christmas Crafts*, Van Nostrand Reinhold Company, New York, Fall, 1984, and Allen Lacy, *Home Ground and Excursions: A Gardener's Miscellany*, Farrar, Straus, New York, Spring, 1984 (tentative title and publication date).

We feel these horticultural writers, indeed all of our authors, add important dimensions to horticulture: information, preservation, stimulation and sharing.

So thank you writers, photographers and artists and thank you readers. We are as important to one another as the light is to the plant, as nature is to horticulture.

Jean Byrne, *Editor*





photos by Steve Thompson

cranberries: *A Growth Industry*

by Jane Pepper

It came as quite a shock my first Christmas in America to find a large red dollop nestled alongside the turkey, squash and butter beans on my dinner plate. Back home in Scotland the Yuletide fare was basically white and green – turkey, bread sauce, roast potatoes and brussel sprouts.

Subsequently, we became cranberry fans extending our consumption way beyond the traditional Thanksgiving and Christmas dinners. Apparently we are not alone. As Ocean Spray, the nation's largest cranberry cooperative, expands the market for cranberries through advertising and development of new products, so Americans keep eating – and asking for more – cranberries. As a nation, our appetite for cranberries is insatiable, and it's boom time in the cranberry world.

havoc in the business

The picture was not always so rosy down at Whitesbog, New Jersey. In the



When the cranberries have been gathered into a corner of the bog they resemble a giant dollop of cranberry ice cream.

mid-60s owner Tom Darlington toyed with the idea of giving up the cranberry business. The State of New Jersey was about to requisition his cranberry bogs, and labor problems were playing havoc with the harvesting. Continuing losses seemed inevitable.

Tom Darlington's grandfather, Joseph J. White, was a pioneer in the cranberry business, running his operation out of a log cabin with one horse and one other man as his work force. When his father-in-law died in 1882, White inherited the nucleus of the present 2,000 acres at Whitesbog, New Jersey. At the peak of his operation Joseph White had 500 acres under production mostly in large 25-acre bogs. Each year, during September and the first half of October, 500 pickers would fan out over these huge bogs, collecting by hand some 20,000 barrels of berries. The pickers came from Philadelphia by train with their families and walked a couple of miles to two small villages, Rome and Florence, where they were issued straw and ticking and given basic accommodations. Once picked the cranberries were stored to await shipment from Thanksgiving through Easter.

After World War I, it became impractical for cranberry growers to secure armies of pickers each fall, so they started harvesting with wooden scoops to speed up the operation. Now 150 scoopers could accomplish a task that had previously required 500 pairs of hands. Scooping, however, hurt not only the scoopers' backs but also the berries and the plants. The harvest lasted poorly in storage, and the vines declined from the rough treatment.

In 1950 Tom Darlington, a mechanical engineer with Westinghouse, returned to Whitesbog following his brother's death, to run the family business. Labor problems continued to plague the industry and during the 1950s Tom developed the Darlington Mechanical Dry Harvester, which enabled the company to decrease by 94% the manpower required; 30 men could now work the original 500 acres.

During the mid-60s New Jersey state officials informed Darlington of their intention to requisition the 2000-acre Whitesbog property as part of the developing Green Acres Program in which the state purchased key tracts of land for recreation, conservation and open space. Water harvesting of cranberries was starting to look promising in other parts of the country and Darlington gradually worked out various agreements with the State that enabled him to continue the 125-year-old family business.

water harvesting

The Darlingtons purchased additional land directly across the highway from the old property and built new bogs, each one carefully designed for water

continued

cranberries:

continued

harvesting, a technique originally developed in Wisconsin. Each five-acre bog is level from end to end within a few inches, making it possible to flood the bog and harvest the whole area at one time. In the old bogs the level varied as much as four feet across the 25 acres. Consequently the bogs had to be flooded gradually to get the correct level of water to use the wet harvesting machines.

Today Whitesbog is a highly mechanized operation with 15 men working year-round on 150 acres to produce approximately 25,000 barrels, 5,000 barrels more than 500 pickers harvested from 500 acres in J. J. White's day. In addition to cranberries, Darlington also grows 100 acres of blueberries to spread the workload across 12 months so he is able to employ his men full-time.

Getting mechanized at Whitesbog is considerably more complicated than ordering a John Deere or International Harvester machine from the local farm store. Each specialized piece of equipment at Whitesbog has been developed by Tom and sons Joe and Mark, now partners in the business. Together their combined talents have produced a host of machines including pickers, elevators to get the cranberries out of the water, air-blown cleaning machines and weed wipers. The latter was my favorite – an old mo-ped, a war-surplus supercharger, a couple of bicycle tires, a strip of felt and a lot of Darlington ingenuity make it possible to cover a five-acre cranberry bog in one hour, removing the weeds but not touching the vines.

Cranberries are grown commercially in a wide variety of soils in New Jersey, Massachusetts, Wisconsin and on the West Coast in Washington and Oregon. At Whitesbog the soils range from sand to peat. The cranberry plant is a 6-in. tall vine and, because they have shallow root systems, they must be protected with water from heavy freezing from December through March. In J. J. White's time the growers would start to drain the protective water off the bogs when the ground oaks had leaves the size of squirrels' ears. In order to prevent one frost from damaging the entire crop, the growers would split the draining of the bogs, draining half around March 20 and the rest around April 10.

Cranberry buds set at the tip of the uprights at the end of the summer. When water is drawn from the bogs in late March the new vines start to grow above the buds. As the buds swell, they become more susceptible to frost, and in the old days growers kept ditches alongside the bogs filled with water in late April and May so they could quickly reflood the bogs if frost threatened. Continual contact with the weather sta-



A team of mechanical harvesters can quickly turn a cranberry bog into a pink sea.

tion was essential and frequently members of the Darlington family spent the night in the bogs with thermometers. A 12° difference between the temperature on high ground and the temperature in the bogs means the growers cannot relax their vigil until mid-June.

Today alarm systems are connected to the bog thermometers and the Darlingtons are gradually installing a complete sprinkler system throughout their property so they can protect the plants by sprinkling rather than reflooding in late spring to keep the bog temperature above 32°F. Not only is this system easier to manage but it has also resulted in unexplained higher yields. Since sprinkler systems were installed growers have gradually been drawing the water from their bogs earlier and earlier and increasing yields up to 40%. Last year Tom drew the water off his bogs in early March.



cranberry culture

Compared to the challenges involved in frost protection and harvesting, Tom makes cranberry culture sound easy. With the sprinkling system growers are now able to irrigate the bogs to make sure plants get about one inch of water per week during the growing season. In late June the Darlingtons fertilize the plants from low-flying airplanes. Fertilizer rates are modest: 100 lbs. of 10-10-10 per acre, compared to the 500 lbs. per acre required for blueberries.

Frequently, members of the Darlington family spent the night in the bogs with thermometers. A 12° difference between the temperature on high ground and the temperature in the bogs means the growers cannot relax their vigil until mid-June.

Whitesbog is at the southern limit for growing cranberries so the plants tend to put out more lush vine growth, making them more susceptible to fungal diseases. However, even under these circumstances, the Darlingtons only apply fungicide twice a year. Scale, cranberry fruit worm, and tipworm are the main insect problems, and these are handled by one pre-bloom and one post-bloom insecticide application.

Beavers, protected animals in New Jersey, create enormous problems for the growers by building dams in unwanted places and by chewing the gate boards in man-made dams. Whistling swans create further challenges by damaging the vines during winter.

In summer, when not involved in the blueberry operation, the Darlingtons must keep after the weeds in the bogs. In Tom's grandfather's day, kerosene was a popular weedkiller. Today the Darlington Weedwiper and Round-up®, a Monsanto product, make it possible for the Darlingtons to keep the bogs fairly weed free. Cranberry tolerance to Round-up varies with the season, and since the growers must leave at least 30 days between application and harvest, the timing of the application is critical.

When it comes to the harvest, the grower must juggle the weather, mechanical breakdowns and labor shortages to get his crop to the processing plant before mid-November. Financial incentives from the cooperative for deep-colored berries discourage early harvesting, and each year the Darlingtons delay their harvest by an additional few days to produce a superior crop. Last year they started on September 20 and were finished by November 7.

The day I visited Whitesbog in early October it was balmy and Tom's crew were harvesting in T-shirts and waders. While two mechanical harvesters swept through one bog picking off the berries, another team worked on an adjacent bog, already picked, gathering the berries in a 400-ft.-long ring of gathering boards. Gradually the team gathered what looked like a giant pot of cranberry ice cream and funneled the berries toward the elevator and into the storage bins. A relay of three trucks transported the berries to the packing shed where they were fed into another Darlington-designed machine for dechaffing. Once the worst of the vines and weeds are removed the berries are shipped to the Ocean Spray plant in Bordentown.

good marketing pays off

Total production for all Ocean Spray members in New Jersey in 1982 was forecast to be 260,000 barrels. As the third largest cranberry producer in New Jersey, the Darlingtons produced approximately 25,000 barrels or 2½ million pounds, with yields as high as 200 barrels per acre, compared to 40 barrels per acre in J. J. White's day.

Greatly imnproved growing and harvesting techniques have created wonderful crops, and Tom Darlington credits the dedicated management of this 800-member cooperative with the development of new markets for the harvest. In the early '60s, Ocean Spray developed Cranberry Juice to be followed by blended drinks like Cranapple, Cranacot, Cranaprune and Cranagrape. In addition to the traditional sauce the cooperative now also produces cranberry and orange relish and Cran-Raspberry sauce. Local markets vary in acceptance of new products, and consumers in New England have a wider variety of cranberry relishes and jellies from which to choose than shoppers in Philadelphia.

With the coming of the "paper bottle," a cheap light-weight storage container that does not require refrigeration, Darlington, a member of the Ocean Spray Board of Directors for 30 years, sees

continued



Pushing the cranberries into the elevator is a damp, exhausting task.

even greater potential for the cooperative's juice products. Large increases in glass-bottling and can costs in the past 10 years encouraged the cooperative to serarch for new technology in the packaging industry. The "paper bottle" process is known as aseptic packaging. Sterile juice is placed in a sterile container made of five layers of foil and plastic laminate and sealed without air into a rectangular box. Because of its light weight, the box is cheap to ship, and its shape allows retailers to use 36% more of each foot of shelf space. In the "paper bottle", the product has a shelf life of six months. Widely used in Europe, this type of packaging was approved by the U.S. Food and Drug Administration less than two years ago.

As a cooperative, Ocean Spray is by law a non-profit enterprise, serving 85% of the nation's cranberry growers. Sophisticated management and crop forecasts now enable the cooperative to provide growers with an anticipated schedule of payments to help its members manage cash flow throughout the year.

cranberries:
continued

At the Bordentown Ocean Spray plant approximately 180 workers process 425,000 barrels of cranberries per year into juices and sauces. (Massachusetts and Wisconsin supply approximately 165,000 barrels; New Jersey provides the rest.) Within the plant they can store about two days' worth of fruit in giant freezers. The rest is stored in local refrigeration units and trucked in daily so the plant continues to operate year-round. Frozen berries are always used in the juice operation because they produce larger volumes of superior colored juice.

Water harvesting has enabled the cranberry industry to prosper, and berries harvested in this manner make excellent juice, relish, sauce and jelly. They are not, however, suitable for packaging fresh, and berries for this market are still picked with the Darlington Dry Harvesting Machine. Despite the lead Tom Darlington took in developing this machine he no longer harvests dry because the Bordentown plant has no equipment for fresh packaging. The berries you will purchase this fall to make your own cranberry jelly probably come from Massachusetts.

In the early 1960s the New Jersey Ocean Spray plant processed 50-75,000 barrels of cranberries each year. By 1985 a greatly expanded, highly efficient plant may process ten times that amount and reach the half-million-barrel-a-year mark.

Tom Darlington for one is bullish on the cranberry industry and has recently arranged with the State of New Jersey to lease back some of the old bogs he gave up to the Green Acres Program. Last fall giant bulldozers were leveling the bogs and dividing them into smaller sections so the crop can be harvested efficiently with the water harvesting machines. Some of the plants have been producing harvests in these bogs since the late 1800s. The way things look at Whitesbog right now they may well keep right on producing into the 21st century.

●

Jane Pepper is the executive director of the Pennsylvania Horticultural Society. She writes a weekly gardening column for the Sunday Books/Leisure section of the *Philadelphia Inquirer*.

THE HARVEST SHOW:

Preserving Your Food and Your Family's Good Reputation

by Alexandra Basinski

Hurrrry, hurrrry, hurrrry, hurrrry.

Step right up. Come to the Big Top and see contestants' best relishes, mustards, pickles, jellies, jams, wines and fruits decorated with blue, red and yellow ribbons. See old and new family recipes (and blue ribbon reputations) being preserved. Welcome to the 1983 Harvest Show, Harvest Circus.

At the 1982 Harvest Show, more than 1,500 entries were made in classes including canned goods, vegetables, annuals, fruits, herbs, scarecrows and harvest tables. Add a sprinkling of sheep, cows, a country band, and we come up with an urban-country fair. It was a lot of fun.

One of the most heavily entered classes at the Show is Preserved Products. Before I began canning, I wondered why anyone would go to "all that bother." So much fresh produce is now available all year long and freezing vegetables solved the problem of growing more broccoli or zucchini than my husband and I could eat in one sitting.

My conversion began one October with more green tomatoes than I could give away. Canning was mysterious to me and, thoughts of botulism notwithstanding, I looked up what turned out to be a good recipe for green tomato relish. In the process, I discovered that information on canning is plentiful and that, if you follow directions carefully, you can avoid problems. The explanations took the mystery out of the hot-water bath and the pressure cooker methods. I borrowed a friend's kettle and tips, bought some jars, and away I went. My recipe didn't win a blue ribbon at the Harvest Show, but here is one that the judges liked:

Aunt Lula's Green Tomato Relish
(Sweet Indian Relish)
from the kitchen of Richard Bitner

3 qts. green tomatoes - chopped
3 large onions - finely chopped

Combine and boil in salt water briefly. Drain and add:

2 cups vinegar (apple cider or white)
2 cups white sugar
4 green or red sweet bell peppers - chopped
(Richard uses red because they look great.)
2 tsp. salt
2 tbs. mustard seed
1 tsp. curry powder

Bring mixture to a full boil. Spoon into sterilized jars leaving ¼ in. head space. Process in a hot water bath for five minutes.

Although he can't consume the more than 100 jars of jams, jellies, and relishes he makes annually, Richard Bitner (chair of the Preserved Products class) says that he enjoys giving them as presents. His friends appreciate the good taste of homemade (and in many cases home grown) items.

Some canning tips he passes on include:

- *Always* follow processing directions carefully.
- Sources of information include:
 Instructions from jar manufacturers.
 State extension services.
 Two of the many good books available include: *Putting Food By* by Ruth Hertzberg, Beatrice Vaughan and Janet Greene, 2d ed. revised, Stephen Green Press, Brattleboro, VT, 1975 (available in paperback); *Stocking Up* by the editors of *Organic Gardening,* edited by Carol Hupping Stoner, Rodale Press, Emmaus, PA, 1977.
- Use the freshest products available. Overripe produce can discolor, taste poorly, and spoil.

Here's another idea for using up some garden extras.

continued



Grandmom's Bread and Butter Pickles

from the kitchen of Richard Bitner

8 cups cucumbers - sliced (do not use oversized, polished cucumbers)
2 cups onion - sliced
3 cups white sugar
2 cups vinegar (apple cider or white)
2 tsp. celery seed
1 tsp. mustard seed
1 tsp. tumeric powder

Soak cucumbers and onions in cold salt water for one hour. Drain. Add sugar and vinegar and spices. Bring mixture to a boil and cook 10 minutes, stirring occasionally. Pour into sterilized jars. Process in a hot water bath for 5 minutes.

Preserving foods isn't just a nostalgic fad but a current occupation or diversion. People want to know what ingredients are included in their foods. Uniqueness motivates some peple since family recipes can't be found in stores. I can't find zucchini relish or basil vinegar in my corner emporium. Ruth Flounders, who gardens at 43rd and Sansom Sts. in Philadelphia enjoys including her family in the fun. Sharing your grandparents recipes with youngsters and friends is delightful. Ruth and her neighbor, Frank Keiser, have gardened in that area for six years. Formerly empty lots, these gardens, turned into neighborhood green spots, are a great place to exchange information. Frank's family canned and soon a whole set of neighbors had caught the gardening and canning bug. They've entered the Harvest Show and now compete for those coveted blue ribbons. Ruth Flounders' favorite blue ribbon winner is:

Plum Conserve

2 lbs. Italian plums
1 cup seedless raisins
1 medium orange
1 lemon
3 cups sugar
½ cup coarsely chopped walnuts

Pit plums. Grind all fruits. Add sugar. Boil mixture and cook about 10 minutes until thick. Stir in nuts. Pour into scalded jars. Process for five minutes in a hot water bath.

Rebecca Melvin gardens at 49th and Aspen Streets, Philadelphia. A community garden that occupies one half of a city block, Aspen Farms, was developed over a five-year period from 1976 until 1980, families adding on sections of gardens year after year. The garden now supports close to 60 families. Rebecca's solution to too much of a good vegetable is:

Zucchini Relish

In a mixing bowl combine:

5 cups grated zucchini
2 cups grated onion
2 large sweet bell peppers, grated (mix green and red)

Then mix in:

2 tbsp. salt

Allow the mixture to stand overnight. Rinse in cold water the next day and drain well. Place zucchini mixture in a kettle with:

1¼ cups cider vinegar
2 tsp. mustard seed
2 tsp. celery seed
½ tsp. tumeric
2¼ cups sugar (you can use slightly less)

Bring mixture to a boil and simmer 20 minutes. Spoon in sterilized jars. Process in a hot water bath for 5 minutes.

I finally won my blue ribbons at the Harvest Show, but not without my share of strawberry jams that never thickened. When I called one of those a strawberry sauce or Sauce aux fraises it tasted delicious enough to win a blue ribbon.

My favorite blue ribbon winner is:

Honeyed Peach Preserves

2 lbs. prepared peaches
4 cups sugar
1 cup light honey
½ grated orange (pulp and rind)
¼ tsp. pure almond extract
½ tsp. salt (optional)

To prepare peaches, wash, rinse and scald (to loosen skins). Dip peaches into cold water. Drain and cut into halves discarding skins; save pits until later. Cut peaches into small pieces. Mix sugar and honey with peaches. Allow to stand while preparing orange. Measure the grated orange peel and add an equal amount of water. Cover and cook slowly until the orange peel is soft enough to mash with fingers. Let stand. Cook peaches over low heat until sugar dissolves. Increase heat and boil about 15 minutes. Add orange mixture and boil until peaches are "clear" and syrup is as thick as honey. Stir in almond extract and salt. Skim foam off peaches and pour hot preserves into hot sterilized jars (leaving ¼ in. head space at the top of the jars). Adjust caps and process for 15 minutes in a boiling hot bath.

As a special treat, open the peach pits and place the kernel, which you've boiled first for 10 minutes, into the middle of the jars before sealing.

These recipes are just a mere sample of what you'll find at the Harvest Show. Come and see how many old and new family recipes and blue ribbon reputations have been preserved.

1983 HARVEST SHOW

The 1983 Harvest Show, A Harvest Circus, sponsored by PHS, will be held on Saturday, September 24 and Sunday, September 25, 10 am to 6 pm. A special Members Preview will be held on Friday, September 23 from 4 pm to 7 pm.

INSTRUCTIONS REVISED FOR CANNING FRUITS AND VEGETABLES FOR GREATER SAFETY

Milton Baldauf, food safety program leader for the United States Department of Agriculture Extension Service, urged home canners to be aware of new recommendations issued by the USDA in June, 1983.

Baldauf said that safe canning of many fruits and vegetables requires approximately twice as much time as had been recommended earlier.

Following the new instructions, said Baldauf, is important because they provide better protection against spoilage and, under certain circumstances, botulism in canned tomatoes. They also help prevent botulism in strained pumpkin and squash and mold spoilage of applesauce and fruit purees.

County extension offices, where home-canning guidance is available in cooperation with the USDA Extension Service and the land grant universities, have the revised recommendations. The changes also may be found in the revised USDA Home and Garden Bulletin No. 8, *Home Canning of Fruits and Vegetables.*

The publication – Stock Number 001-000-03535-5 – is available for $2.50 from the U.S. Government Printing Office, Superintendent of Documents, Washington, DC 20402.

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Alexandra Basinski is a district coordinator for Philadelphia Green and community gardens advisor for the Harvest Show. She is also a frequent entrant in the Harvest Show.



photos by Alexandra Basinski

The author's blue ribbon strawberry sauce or "sauce aux fraises."

The Harvest Show exhibitors. The best show off their blue ribbons.



Left: Botanical drawing of *Crocus sativus* from *The Book of Spices* by Frederic Rosengarten, Jr.
Lower right: Crocus corms and cormlets dug from the author's garden during summer dormancy.
Top: An ornately lithographed tin box from Spain with approximately $150.00 worth of saffron (at retail) taken from the author's family vault.



photo by Mark Rosnick

SAFFRON — GROW GOLD!

by Bertha Reppert

"I want to place an order for a million saffron bulbs," he said.

"A million?" I gasped.

"That's right. I have a buyer from the Middle East who wants them," said the New York import-export agent on the other end of the wire.

A hasty call to my supplier informed me that the entire output from the Holland bulb markets in any given fall is 75,000 bulbs. "In any case," he told me, "they are collected in the wilds of their native Asia Minor."

Perhaps now that saffron is rapidly gaining on gold in value, the Middle East wants their saffron bulbs back. To forestall a worldwide saffron crisis, I strongly suggest we all grow our own. If at all possible, get your saffron bulbs under cover in your own garden beds while still available.

The glorious history of this small herb reads like the story of man. In 1700 B.C. a fresco from the palace of Knossos in Crete shows a saffron gatherer. Native to Greece, Iran, Turkey and Afghanistan, saffron was a valued commodity traveling the richest trade routes when ancient Persia gave it its common name, *zafron,* their word for yellow.

It is extolled in the Old Testament when, in 950 B.C. Solomon sings of it, he who had his royal robes dyed saffron yellow. In 400 B.C. Hippocrates listed it among the 400 herbs useful in medicines. Gold plates piled with saffron were carried in the procession greeting Nero upon his entry into Rome while hundreds of dancing maidens sprinkled the guests with saffron perfumed water.

In the 13th century, the Mongols took it to China where it is called *saf-a-lang;* today a trace of saffron oil is an essential ingredient in exotic Oriental perfumes. In India imperial feasts once ended with a liquor of milk flavored with saffron. Now a permanent part of India's cuisine, it is grown there commercially.

The Moors carried it to sun-kissed Spain where it flavors rice and is said to grow better than anywhere in the world. Smuggled into England in the hollow staff of a crusader, it was planted in Saffron-Walden in Essex where it was cultivated for commerce from the 14th to the 18 century and gave a community its name. Workers in the once famous English saffron industry were known as "crockers" and to this day the coat of arms of Saffron-Walden bears three saf-

fron crocus flowers.

Eventually, by 1700 A.D. it was carried, crammed in sea chests, to Pennsylvania by the Mennonites and Schwenkfelders seeking religious refuge on free soil.

I have an old Spanish saffron tin boldly labeled *Flor de Oro* (Flowers of Gold) picturing women hand-harvesting fields of saffron blossoms while the older and younger members of the family are cozily grouped around a large kitchen table carefully separating stigmas from basketsful of purple flowers. The father is over at the fireplace gently toasting their

Because of the great value, limited supply and exorbitant costs of saffron production, it has always been plagued by adulteration, a crime once punishable by death.

"vegetable gold" into the finished product, ½ in. golden threads of saffron.

it's expensive but useful

A burnt orange spice considered to be the world's costliest, it's the labor and demand that contribute to the soaring price. Using a popular line of spices as a guide, one small bottle containing a paper packet of saffron weighing in at $6.99 a gram brings the current retail price, including all packaging, up to $3,145.50 a pound.* "Gold threads" indeed!

Fortunately, you can grow your own and a little saffron goes a long way. A few threads are all that is needed no matter how you wish to use it. Perhaps that is why it has come to symbolize "moderation." In recipes, "sparingly" is the keyword, a few strands will color and flavor enough rice for six. Two much will give the dish a decided medicinal, perhaps even bitter, flavor.

Once used medicinally, a pungent tea of saffron made from a few threads dissolved in a cup of hot water produces perspiration and was once administered to children to bring out the measles. The Elizabethan herbalist John Gerard recommended it as a stimulant "for

*Charlotte Archer, PHS's members coordinator, says the current price at the Spice Corner, 904 S. 9th St., Philadelphia, is $720 per pound.

Bertha Reppert gathers the stigmas from the crocus early in the morning in October. The dried stigmas are the golden saffron threads.



photo by Pat Seip, *Organic Gardening*, Rodale Press



photo by Pat Seip from *Organic Gardening*, Rodale Press

Saffron corms ready for planting.

those at death's door." Too much (if one could afford it) is said to provoke extreme merriment.

As a plant dye, one part saffron is suggested to 10,000 parts water, approximately 1 gram to a gallon of water, to tie-dye a tee shirt. Containing crocin, a powerful reddish-yellow pigment, a touch of saffron in a canary's drinking water will intensify his yellow color while encouraging him to sing.

plant collecting and propagating

Seasoning, medicine, dye, the quite remarkable usefulness and great cost should stimulate all gardeners to try growing their own saffron. Planted in fall, it's as easy as growing any other crocus. A fall blooming species, *Crocus sativus* (Kro-kus sa-ty'-vus; family *Iridaceae*) blooms in mid-October in the Delaware Valley area. Three to five flowers per bulb arise without warning over a two-week period closely followed by grass-like leaves. Each chaliced flower has five 2-in. petals with bearded throats. They have been variously described as lilac, mauve, or lavender-blue; a soft lovely shade, it is the perfect foil for the blistering orange-red stigmas that rise saucily above the petals, flaring out as if beckoning to be picked. These stigmas are the saffron. Pluck the brilliant tripartite stigmas that appear each morning and leave the flowers to enjoy at a time when little else is in bloom in the garden.

Saffron flowers, like all crocus, are produced from flat corms or enlarged underground stems. To increase your supply, every few years, in the summer, separate the small cormlets formed around the base of the large mother bulb and plant them 3 in. deep and 3 in. apart in the rich, sandy, well-drained soil they require. Said to be under the sun's dominion, a sunny situation sheltered from our early frosts is best. In fact, they will not open on gloomy days.

One drying stigma can fragrance a room, reminiscent of an ancient Roman carnival.

Saffron is grown commercially in countries endowed with strong sun and subject to a low annual rainfall. If there is too much rain or it's not warm enough, the perennial corms tend to produce only leaves with no flowers. After several disappointing tries, my sunny southern bank of sandy soil has at last proven adequate to saffron's need, and I'm successfully harvesting my own vegetative gold.

To insure your own crop, I would strongly recommend a raised bed to which sand has been added along with a generous meal of superphosphate to encourage good root growth. If flowering becomes sparse, lift the burrowing bulbs and reset them a few inches below the surface. It's also most important that you mark the spot. Underground for most of the year, the small bulbs are easily uprooted by weeding or by the overplanting of other flowers.

When collecting small amounts of saffron on a daily basis, I carefully arrange the brightly colored stigmas on a sheet of clean white paper and, without daring to breathe lest I blow it away, place the precious spice in a warm place atop my refrigerator where it dries perfectly overnight. If you have a dehydrator, that would work well for a large crop although the aroma might be overpowering. One

drying stigma can fragrance a room, reminiscent of an ancient Roman carnival.

Perhaps after all the centuries of harvesting its seed-producing parts, it no longer sets seeds readily, for I have never seen seed of *Crocus sativa* listed anywhere. If it sets seed, a crocus takes at least three years to produce a flowering size corm. I have other species crocus that self-sow and surely the saffron crocus must do so in its native habitat. In any case, vegetative propagation is faster as well as surer.

When listed, saffron seed is invariably safflower *(Carthamus tinctorius),* an orange flowered thistle with petals that are sometimes used as a saffron substitute. Called "bastard saffron" or "poorman's saffron" and in Pennsylvania Dutch country "bush saffron," this annual is valuable commercially for its low cholesterol oil, useful as a yellow-red dye plant and very pretty in dried bouquets. But it is not saffron.

Another common name leading to confusion is the so-called autumn crocus *(Colchicum autumnale* of the *Liliaceae).* Bearing similar but much larger lavender flowers at the same time in the garden, it's easy to understand the mistaken identity. Colchicum is a drug plant producing colchicine, useful in the treatment of gout but dangerous as a home remedy. It does not produce anything remotely resembling the graceful orange triple stigmas of true saffron.

Because of the great value, limited supply and exorbitant costs of saffron production, it has always been plagued by adulteration, a crime once punishable by death. Government regulation is nothing new and saffron inspectors were employed during the Renaissance to insure a pure product. Today the United States has rigid standards for imported saffron.

Common adulterants are dried safflowers, marigold petals, turmeric, even corn silk. If you choose not to grow your own, always buy whole saffron threads, not powdered, as your best insurance against hard-to-detect adulteration. Powdered saffron is not only easy to debase, it is possible to use too much of it in cookery, both overpowering and wasteful.

Preserve your precious saffron, harvest or purchase, in a tightly lidded dark jar away from heat and light, destroyers of both color and flavor. The William Penn Museum in Harrisburg houses a famous collection of late nineteenth century hand-turned wooden saffron boxes by Joseph Lehn. Such safe storage of the costly spice is a time honored tradition among the Pennsylvania Germans some of whom have been growing their own saffron for centuries.

Traveling the routes of trade, exploration, conquest and migration, saffron is a spice that has lent its distinctive flavor to all the great cuisines of the world: Indian curries, English cakes, Scandinavian breads, Spanish paella, Italian rissotos, the French fisherman's savory bouillabaisse, African couscous and Pennsylvania Dutch potpie. With access to well developed backyard saffron beds, these good cooks use it in many dishes, especially their famous chicken soup made rich with golden homemade noodles (see box).

Once considered to be the "only thing that could make crocodiles weep," this costly spice is getting high enough in price to make us weep. If you are clever enough to grow your own saffron, you can extol its virtues as you reap your harvest, singing the Song of Solomon if you will, then savor the flavor said to "most closely resemble sunlight."

Sources for Saffron Bulbs

(available in the fall)

Nichols Garden Nursery
1190 N. Pacific Highway
Albany, Oregon 97321

Van Bourgondien Bros.
245 Farmingdale Road
Babylon, NY 11702

P. deJager and Sons, Inc.
P.O. Box 100
Brewster, NY 10509

The Rosemary House
120 S. Market Street
Mechanicsburg, PA 17055

White Flower Farm
Litchfield, CT 06759

Catalogs available from all the above.

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Bertha Reppert is owner-operator of The Rosemary House in Mechanicsburg, PA, an herb and spice shop dedicated to the plants useful to people. Behind the charming shop, she tends an herb garden with more than 100 herbs, open to the public. She has witten and lectured extensively about herbs and conducts workshops at Rosemary House.

Mary Reppert's Schwenkfelder Saffron Bread

In 1904, Howard Wiegner Kriebel wrote of saffron in *The Schwenkfelders in Pennsylvania.* Speaking most engagingly of the Schwenkfelder bride, he says she "had learned to make her own soap, to cook and bake and, what was a pride of her heart, to make a Schwenkfelder cake. This was a risen cake, spread by rolling pin, flavored by saffron, and crowned by sweetened crumbs, as wide as the oven door or baker's tools would warrant and baked in the old-fashioned bake-ovens."

My mother-in-law, a Schwenkfelder descendant, used this recipe. Not quite as wide as the oven door, it is adapted to smaller stoves and families.

saffron bread

2 cakes of yeast
2½ cups milk, warmed
1 tsp. saffron
1½ cups granulated sugar
¼ tsp. salt
2 eggs, beaten until frothy
½ lb. butter, can be unsalted
8 cups all purpose flour

filling

½ cup ground almonds
1 cup white seedless raisins
¼ cup citron
1 tbsp. grated lemon rind

Dissolve yeast in 1/3 cup lukewarm milk. Put saffron in mortar and pestle and mix with hot water until smooth.

In a large bowl, mix the rest of the milk (2 cups) with the saffron, sugar, salt, beaten eggs, half of the butter (¼ lb.) and add a little of the flour at a time until it is all used. Cover with a warm cloth and put in a warm place, ideally 80° to rise. In two hours it should double in bulk.

Turn out dough onto a lightly floured board and knead until it has a smooth surface. Cover dough on board with the cloth and leave it 30 min.

Mix together the ground almonds, seedless raisins, citron and grated lemon rind. Roll dough into a long sheet, sprinkle mixture evenly over the dough, press into dough with back of a spoon. Sprinkle surface with granulated sugar. Roll up like a jelly roll, very tightly. Wrap in cloth and chill in refrigerator or freezer, 1 hour.

Preheat oven to 375°. Butter well two baking sheets. Cut dough into ¾-in. slices and lay on sheets, overlapping them to make a wreath. Let them rise 15 to 25 min. Brush with glaze (2 tbsp. confectioners sugar dissolved in ¼ cup milk) and bake 15 to 20 min. until lightly browned. Serve warm.

A Pumpkin Totem Pole

by Joseph Kerwin



After PHS's Harvest Show I was left with a glut of pumpkins. I decided to place them around the garden at our headquarters, and to take one home to make pumpkin pie. While skimming through *The Joy of Cooking* for a pie recipe I came across a short paragraph about making a pumpkin totem pole; I then continued to look for the pie recipe. A few days later while leafing through another book, *Nature Craft* (Mary Elizabeth Johnson and Katherine Pearson, Oxmoor House, Inc., 1980), I found a picture and description of the totem pole. I thought it would be fun to make one and to see what everyone's reaction would be.

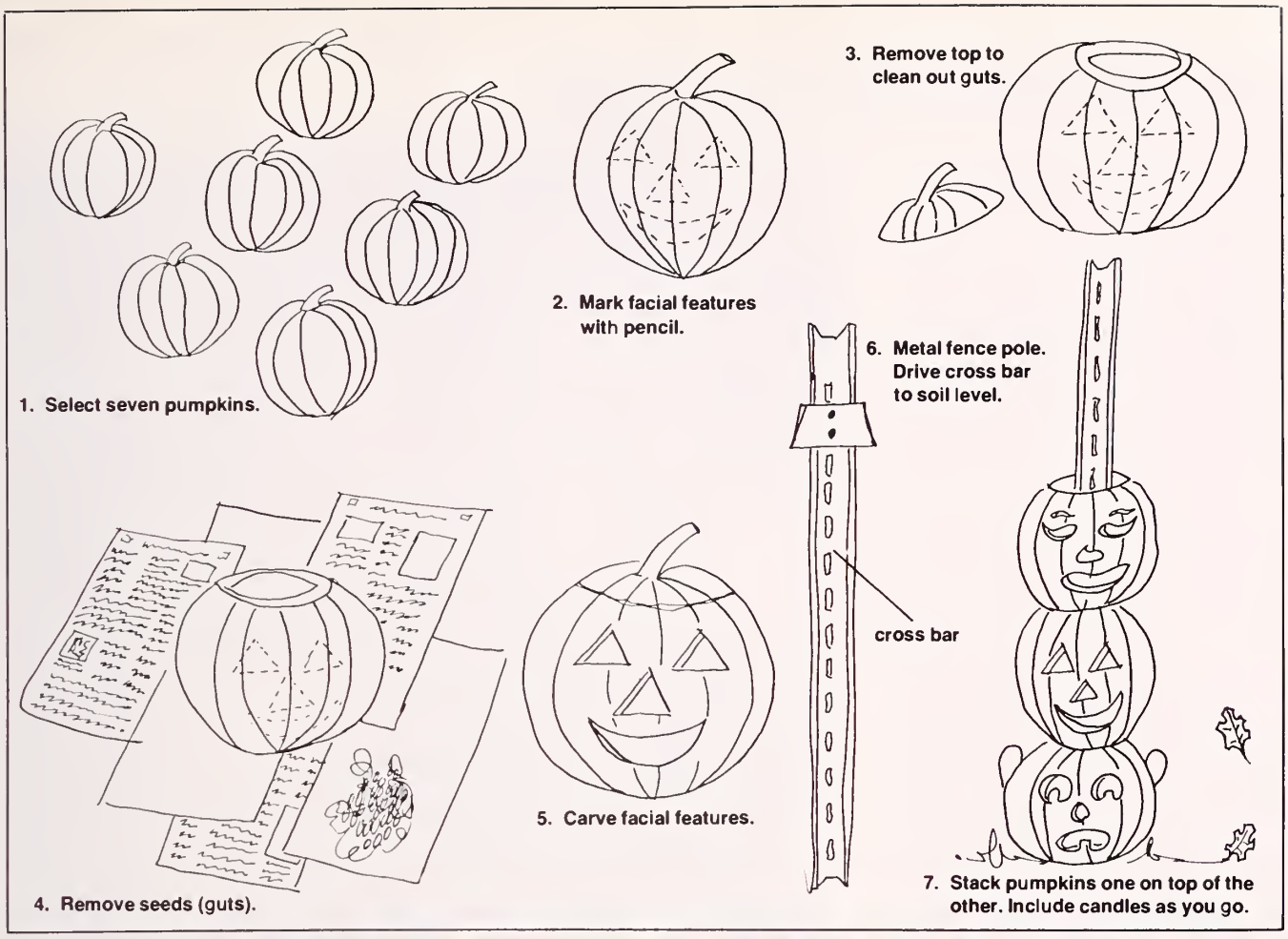
I started by marking the pumpkin's features with a pencil and then carved the top with a short sharp knife. I removed the guts with a large spoon, and when the pumpkin was cleaned I carved the facial features. The bits from the mouth and eyes were used to make ears, which I fastened with florist wire. After carving the fifth pumpkin I decided this would be a great group project for children and adults alike.

With the completion of the seventh pumpkin I rummaged through our shed for a metal fence pole to stabilize the structure. The pole was driven down to its cross bar and pumpkins were glided down the post. (You may have to puncture a small hole in the base of the pumpkin.) Stacking was done according to size with the largest one on bottom. As each pumpkin was placed, several candles were added; it's too difficult to do after all of the pumpkins are stacked. The top of each pumpkin was trimmed so the next one would sit level. That's all there is to it. In the evening, light one candle in each pumpkin with long matches and sit back and watch what a crowd pleaser you have created.

We placed our pumpkin totem in the garden looking in the window for our Member's Evening. The candles drew people to the spot all evening. It was definitely a success.

●

Joe Kerwin is PHS assistant horticulturist and Flower Show floor manager. He received his B.S. in agriculture from the University of Tennessee. Kerwin worked two years as horticulturist for Columbia University and also worked for the Horticultural Society of New York in the community gardening program.



drawing by Joseph Kerwin



photo by Ed Lindemann

Joe Kerwin lights the pumpkin totem pole at dusk. The pumpkins, facing a window, will brightly leer at the guests throughout the evening.

FERTILIZERS:

How to pick them for your plants

by Anne S. Cunningham



photo staged by Waterloo Gardens

photo by Anne S. Cunningham

Any good garden center will have a full range of fertilizers and qualified personnel who can answer questions.

Unlike the gourmets we all know, plants can't distinguish between their sources of nutrition. Whether the elements come from factory, animal, garden, or ocean, a plant uses them only in their absorbable (ionic) form. So the difference in fertilizers is how long it takes a nutrient to reach the stage where it becomes useful to the plant, what it carries with it, cost and convenience.

Even though many of the necessary nutritional elements are found in the soil, they are frequently in an unusable form or are changing into a usable form at a rate too slow for the demands of the plant. The more active the plant growth, the more fertilizer is needed. Many gardeners treat their plants as they would treat their children: giving them nutrients to support their growth, not stuffing them full of nutrients to *force* their growth. Some experts believe in the constant feed system, again using the analogy of a child that has to be fed every day, while others feel a plant should be given more fertilizer in its more active stages, less in its winter dormant period. Commercial growers and experts who grow for show favor the constant feed system; they can't afford a dormant season.

Organic fertilizers applied individually to the soil release about one half their nutrients in the first growing season. Advocates like them for their purity, reliability and low-burn rate. They can be found at low cost or even free. Critics claim they're bulky, smelly, heavy, hard to use and don't give instant satisfaction.

To fertilize effectively, consider the needs of each plant separately. An african violet needs fertilizing once a week compared to a cactus, which should be fertilized less than three times a year. The extreme would be hydroponic growing, where the sole source of nutrients is the fertilizer, so the plant has to be fed several times a day. There are three other factors that determine the amount of fertilizer: the age of the plant, the kind of soil, and the type of fertilizer.

CHEMICAL FERTILIZERS

Chemical fertilizers come in a wide variety of crystals, powders, liquids, pellets, spikes, and time release capsules. Federal law requires a chemical fertilizer label to list the three macronutrients, nitrogen, phosphorus, and potassium, in a precise order. Nitrogen (N), the first element, is necessary for above ground vegetative growth, giving leaves and stems a healthy green color. If it's lacking, the new leaves use it first, and eventually the older leaves turn yellow and fall off. While some nitrogen comes from the atmosphere, most of it comes from organic matter that goes through several conversion stages before it is

ready to be used by a plant. The second major element, Phosphorus (P), is important for root development and the formation of seeds, flowers, and fruit. Phosphorus doesn't travel well, usually remaining where it is applied, so it is important to get it down to the roots where it's needed. The final element, Potassium (K), improves the rigidity of stalks and helps plants overcome adverse soil or weather conditions.

Many labels stop with the three major elements, though there are 16 elements (a few plants require 17) essential for proper plant development. If even one of these 16 is missing, the plant may not grow to its optimum potential. The next three elements, Carbon, Hydrogen, and Oxygen, come from the atmosphere and from water. The remaining micronutrients are in quantities too small to measure accurately, or just as often they may be omitted if the fertilizer manufacturer is trying to save money. There can be a chelating agent, i.e., is an agent that helps the micronutrients stay in a form easily absorbed by the plant and helps correct chlorosis (yellowing due to lack of iron). There can even be fillers like sawdust in grass fertilizers, or fine grains of sand and chemical impurities in houseplant and garden fertilizers.

To compare fertilizers with the same chemical formula, put equivalent liquid amounts of each in clear glasses, let these stand for 8 to 10 hours. Observe: some fertilizers, even the ones that appear to be clear liquids, will actually be cloudy compared to others and will have undissolved residue in the bottom of the glass. The highest quality fertilizer will dissolve totally in a short time, leaving nothing behind. The residue problem is particularly important to large commercial greenhouses where a small particle could clog equipment lines. The high quality fertilizer will be clear (not cloudy) though it may have a tracer color (blue, green, or orange) to distinguish it from water.

Peters Fertilizer Company in Folgelsville, Pa. has a good record of fertilizer performance and chemical quality control. Started by Robert B. Peters in his garage more than 30 years ago, and recently acquired by W. R. Grace Company, Peters now has research and development facilities in South Carolina and Ithaca, NY, as well as a testing lab in Folgelsville.

According to Jack Peters, son of the founder, their fertilizers are used by 80% of the commercial growers in the East, and by slightly fewer in the western United States, where they are less well known. Indeed, an informal survey of greenhouses and plant stores in the Delaware Valley showed that a majority use at least one of the Peters formulas at some point during the growing season.

Peters' ever-popular 20-20-20 houseplant formula has been augmented by 10 consumer products like African Violet Mix and Blossom Booster (where nitrogen is lowered to encourage bud setting), as well as 40 fertilizers developed for professional use for everything from Easter lilies and poinsettias to azaleas and tobacco. One of their most famous products is an orchid fertilizer, which is shipped internationally, as far away as Bangkok, Thailand.

Quality control contributes to Peters' success. Only technical grade chemicals are used to insure no residue; and

After one growing season, total yield and leaf analysis data indicated the majority of labs recommended unnecessary fertilizers; one lab advised $41.89 worth of nutrients per acre that did nothing to improve the end result.

the trace elements are kept at a .05 to .1 minimum level that is effective but not toxic to the plants. The company laboratory is equipped with an Antek nitrogen analyzer and an ICAP spectrometer capable of analyzing 20 element in 90 seconds. With this equipment and top trained personnel, they are able to analyze more than 11,000 samples a year to provide technical support for their products. Commercial customers can get potting medium and plant tissue analyses in less than 72 hours, compared to the weeks or months it might take to get the same information from a state agricultural service. Another reason Peters fertilizers are popular is their low burn rate. If they are applied inadvertently to leaves they won't burn or spot and can be safely left on as a foliar feed. And they rarely cause root burn or excess soluble salt build-up.

salt build-up

Soluble salt accumulation can interfere with plant growth whether organic or chemical fertilizers are used. Some organic fertilizers such as animal waste products can be high in soluble salts. In greenhouses or with houseplants – for any plant in a pot – frequent fertilizer applications without proper leaching may result in undesirable salt concentrations, which seriously limit plant development. The symptoms of high soluble salt build-up are slow growth (in spite of fertilizers) and wilting even though the soil may be moist. The excessive salts hold the water so it's unavailable to the roots, the root cells fail to develop properly, and the plant eventually dies.

One remedy is leaching or thoroughly watering the potted plant until the water runs out the bottom. This should be done two or three times, several hours apart. The first watering dissolves the salts, the second washes them out (again the water has to run out the bottom for at least several minutes); the third watering completed the rinse.

A second way to avoid the problem is to use a soilless planting medium in combination with a constant feed fertilizer program. More and more commercial growers find this is the fastest and most reliable combination. Soilless planting media could be something like 50% peat moss, and 50% vermiculite with added nutrients. Occasionally "soilless" combinations include a little but rarely more than 20% soil, or sand if the plant requires it. Gardeners who favor artificial soils like them because they're lightweight, drain well, provide good aeration for the roots and can be a buffer against under- or over-fertilizing when used as part of a constant feed program.

slow release fertilizers

If the fertilizing is not done on a reliable schedule, there is danger of starving the plant or of giving it irregular shocks when the chemicals are finally applied. For this reason some people prefer slow-release capsules or spikes. These are labor-saving and can't shock the plant, but because they have different catalysts (water or heat) the rate of release is not always reliable and the

continued

FERTILIZERS:
continued

photos supplied by Peters Fertilizer Co



Nutritional deficiencies are illustrated by these blueberry leaves: (from left to right) (1) normal healthy leaf; (2) nitrogen deficiency shows itself as an overall yellowing, particularly on the lower leaves; (3) potassium deficiency renders a reddish color; (4) trace elements chlorosis shows up on the new growth. Here iron reaches only the veins.



Regular fertilizing helps develop a good root system, which experts agree is the key to a healthy plant. Finicky buyers often examine a plant's root system before buying it.

nutrients may not reach the plant when they're needed. One of the most popular of this variety is Osmocote, a soluble fertilizer encased in a semi-permeable polymer resin coating for slow release when put in the ground.

PRODUCTS FROM THE SEA

Some experts claim plants develop greater resistance to cold temperatures and to disease- and insect-related problems when the plants are fertilized with sea products like fish emulsion and seaweed. Pure fish emulsion (available at garden centers) is considered an excellent fertilizer, high in nitrogen though relatively low in phosphorus and potassium. A number of commercial fertilizers called fish emulsion are only partially fish, the remaining ingredients are chemical solubles. Fish fertilizer works faster if it is fortified with nitrate nitrogen, but it has to be at least 50% fish to be effective. Be sure to check label for ingredients. It can't burn roots, and people who might be offended by the smell have found that diluting it to half-strength then applying it twice as often makes it more tolerable.

ORGANIC FERTILIZERS

For those who wish to avoid chemicals there are hundreds of organic fertilizers that can be used alone or in combinations. Organic fertilizers provide humus and bacteria absent in chemical and synthetic fertilizers so they improve the physical structure of the soil each time they're added, rather than just "passing through." Instead of feeding the plant directly, organic fertilizers interact with rocks and soil particles to extract nutrients and make them available to the plant.

The natural process is slow and can be helped or hindered by factors such as temperature and water. Organic fertilizers applied individually to the soil release about one half their nutrients in the first growing season. Advocates like them for their purity, reliability, and low-burn rate. They can be found at low cost or even free. Critics claim they're bulky, smelly, heavy, hard to use and don't give instant satisfaction.

The mecca for organic gardeners is the Rodale Press in Emmaus, Pa. In addition to valuable publications such as *Organic Gardening* magazine, there are pamphlets and books available on every conceivable aspect of organic growing, from compost to companion planting. One such pamphlet, *Making the Best Use of Organic Fertilizers,* reminds the reader not to develop a "numbers complex," for it is difficult to equate chemical and organic fertilizer ratios. They suggest using heavy amounts of organic materials the first year because of the slow release factor. After the first year, proceed with moderation.

organic soil test

The Rodale Research Center conducted an interesting soil sample test for one of their publications, *New Farm* magazine, which showed that in many cases "unreliable fertilizer recommen-

dations ... increase a farmer's production costs, not his yields or profits." (Feb. 1983)

In the experiment, soil samples from six different fields, along with crop histories, were sent to 70 agricultural labs, both state-run and private. To test the wide variety of lab responses, the fields were subdivided into 176 plots, fertilized according to the different recommendations, then planted. After one growing season, total yield and leaf analysis data indicated the majority of labs recommended unnecessary fertilizers; one lab advised $41.89 worth of nutrients per acre that did nothing to improve the end result. Generally the labs suggested too much nitrogen because they did not take into account the nitrogen contribution of the previous crop, an important consideration in organic growing. Phosphorus amounts varied, but no matter what quantity was applied, it seemed to make little difference in the results. Potassium recommendations made the biggest difference, though many labs came in too low, resulting in crop loss of as much as 50 bushels per acre. While these tests were limited to farming, a parallel could be drawn that might alert the home gardener not to blindly accept a single soil test as gospel, nor to assume soil requirements remain constant year after year.

what to use

For outdoor use, innumerable substances are available as organic fertilizers. Some are listed with their approximate N-P-K values on the Organic Fertilizer Chart. A complete list may be found in Rodale's *Guide to Composting* and a list of businesses that carry those ingredients is available through the *Organic Gardening* Readers Service Department.

Composting is a popular method of mixing organic materials for a garden. By combining the organic ingredients then letting them age together, a complete garden fertilizer can be created for little cost. The most frequent mistake in composting is not covering the piles so the nutrients are leached out by rain or snow before they are used on the garden.

Organic fertilizers need not be restricted to outdoor use. For houseplants, a cheap "compost tea" can be made with an approximate N-P-K value of 2-4-1.65: four parts coffee grounds to one part bone meal to one part wood ashes. If it is mixed with water and made into a liquid, the tea can be stored and used throughout the year. Because gasses may expand, it is best to cover the mixture with aluminum foil rather than a tight lid.

Because plants care only about the nutritional availability of what is applied and not about the fertilizer itself, the choice is up to the gardener. If one's lifestyle allows only a limited amount of time for gardening, high quality chemical fertilizers offer easy, reliable nourishment for your plants. On the other hand, organic materials offer low cost (possibly free) fertilizers which require greater effort but in the end achieve an equally healthy plant and avoid chemicals.

Sources for Fertilizer Information

Send a self-addressed, stamped business size envelope to:

Chemical
Peters Fertilizer Company
Folgelsville, PA 18051

Organic
Organic Gardening Magazine
Rodale Press
Emmaus, PA 18049

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Anne Cunningham is a free lance writer who specializes in horticultural subjects.

ORGANIC MATERIALS (N-P-K Content)

Organic Material	Nitrogen	Phosphorus	Potassium
Activated sludge	5.0	3.0	0.5
Alfalfa hay	2.4	0.5	2.1
Apple leaves	2.4	0.5	2.1
Apple pomace	2.0	0.0	0.0
Bat guano	13.0	5.0	2.0
Beef manure	0.8	0.3	0.7
Blood meal	13.0	1.5	1.0
Bone meal: raw	4.0	18.0	0.0
Bone meal: steamed	3.0	25.0	0.0
Brewers grains	0.9	0.5	0.0
Cattail reed and water lily stem	2.0	0.8	3.4
Coffee grounds	2.0	5.0	5.0
Cottonseed meal	6.0	3.0	2.0
Cottonseed	3.1	1.2	1.1
Eggshells	1.1	0.3	0.1
Fish meal	10.0	5.0	0.0
Fish scraps (fresh)	6.5	3.7	0.0
Goat manure	3.0	2.0	3.0
Granite dust	0.0	0.0	4.0
Greensand	0.0	1.5	5.0
Hog manure	1.0	1.0	1.0
Hoof meal and horn dust	12.5	1.7	0.0
Horse manure	0.7	0.3	0.5
Liquid seaweed	1.0	2.0	3.0
Oak leaves	0.8	0.3	0.1
Orange culls	0.2	0.1	0.2
Peanut shells	0.8	0.1	0.5
Phosphate rock	0.0	40.0	0.0
Pine needles	0.4	0.1	0.0
Poultry manure	1.5	1.5	1.0
Rabbit manure	2.0	1.5	1.5
Seaweed	1.6	0.7	4.9
Sheep manure	2.0	1.0	3.0
Steer manure	2.0	0.5	2.0
Straw	1.5	0.3	1.5
Tankage (steamed animal matter)	7.0	8.0	2.0
Tea grounds	4.1	0.6	0.4
Tobacco leaves	4.0	0.5	6.0
Tomato leaves and stalks	0.3	0.1	0.4
Urea formaldehyde	38.0	0.0	0.0
Wheat (straw)	0.5	0.1	0.6
Winery pomace	2.0	1.5	1.0
Wood ashes	0.0	1.5	7.0



Altocumulus clouds. Mackeral sky.

ALMANAC WEATHER PREDICTIONS:

Folklore, Fact and Fancy

by Marjorie B. Hunt

photos courtesy of United States Department of Commerce, National Oceanic and Atmospheric Administration.



Pity the poor overdressed woolly bear caterpillar. Only last fall he was the darling of the nature crowd. Picked up, cuddled, and oh-so-carefully examined, he puffed up his thick brown-banded coat, and we imagine he winked as he heard for the umpteenth time, "See, it's going to be a cold, cold winter."

By December, however, the National Weather Service had given us shorter-term but more reliable predictions, based on far-from-cuddly computer read-outs of atmospheric pressure and ocean current changes. In the eastern states, fuel companies revised oil-use estimates downward, and the sleeping woolly bear caterpillar was forgotten. No one cared if the woolly bear caterpillar woke to feel like a fur-coated refugee from Philadelphia just off the plane in 80° St. Thomas.

Thick coats on animals or caterpillars indicate only that there have been good conditions for growth in the previous summer season. By rough law of compensation, cold winters often follow warm summers. Often, but not always. Indeed, just often enough to confuse us – and to assure the woolly weatherman a place in each year's almanac.

Poor Richard, *alias* Benjamin Franklin, was not the first to publish an almanac. Ancient Egyptians used them. "Almanac" is an Arabic word meaning "calendar of the skies." Aristotle and his pupil Theophrastus made systematic collections of weather lore. It was the Greek poet Aratus who gave grace to ancient weather sayings and rendered them memorable by putting them in verse, while the Latin poet Virgil sprinkled the more metaphorical of them in his writings. Each culture has left its own mark on almanac predictions; the ancients relied on astrology and heavenly signs; the Europeans of the Middle Ages on hagiology, relating weather lore to a calendar of Saints' Days, each with its own legend; and our Yankee forebears, who published an almanac as early as 1639, grafted new observations to borrowed lore that aided crops, while delivering moral preachments to reform those who grew them.

In addition to annual almanacs in modern times, there were periodic collections of weather lore, among them Richard Inward's compilation in 19th century England, and the U.S. Army Signal Service book of 1883. But for every saying set down in print, many remain in oral use only. The oral tradition is a long one, probably going back to a caveman who was carried away in his enthusiasm for cause and effect. After all, it's not very far from "Cloud come. Rain come. Ugh!" to "When clouds appear like rocks and towers, / The earth's refreshed by frequent showers."

Surprisingly, relatively obscure sayings are often the most accurate, for they tend to be specific, short-term predictions of a local nature, the product of keen observation and long experience. For example, "When Lookout Mountain has its cap on, it will rain in two hours."

public scorn, private superstition

The American frontiersman treated his almanac, the second book of a two-volume home library that began with the Bible, with public scorn and private



Fine weather clouds (cumulus).

superstition and obedience – not unlike the attitude we take toward television meteorologists. He also contributed to weather lore, for he was usually a farmer, and a small farmer's ability to size up and forecast weather can make or break him. Even today, a local observation like the one about Lookout Mountain can help the farmer who is trying to decide whether to cut hay in a particular field more than the fanciest satellite photograph. We all know, however, that farming is changing today. Large-scale agribusiness plays the averages, allows for loss, and uses high technology to tell it what and when to plant. The farmer in his air-conditioned tractor cab is far removed from the "sniff-the-air" prognostication that helped his grandfather.

Large-scale agribusiness plays the averages, allows for loss, and uses high technology to tell it what and when to plant. The farmer in his air-conditioned cab is far removed from the "sniff-the-air" prognostication that helped his grandfather.

Today, it is the home gardener who is best positioned to read signs in nature and to use them well. But to use them wisely, a gardener must be able to separate sound guidance based on meteorological truth from layers of accumulated superstition. Here are a few guidelines:

• **Ignore long-term predictions tied to specific dates.** *Example:* "St Swithin's Day, if thou dost rain, / For 40 days it will remain." *Explanation:* Even though sayings of this type may describe local weather trends, many of them are pure Saints' Day superstitions. This includes our favorite Groundhog Day tradition, which is borrowed from the English Michaelmas. With the comparatively recent change to a new calendar, the specific day may not even fall at the same astronomical time it once did.

• **Take animal signs with a grain of salt, unless you know the animal well enough to rule out alternative causes for the behavior.** *Examples:* "If the cock crows on going to bed, / He's sure to rise with a watery head," and "A dog rolling on the ground is a sign of violent wind." *Explanation:* Some roosters when disturbed will crow at any time of day, and dogs roll to perfume themselves with dead animals and other nasty things, to scratch, or for the sheer joy of rolling. Animals, and people too, are air-pressure sensitive, lethargic in low pressure, and restless as pressure changes rapidly or rises before storms. Like people also, animals predict poorly because they are easily distracted. At best their behavior can serve to confirm the more dependable behavior of barometers: "First rise after very low, / Indicates a stormy blow."

• **Since plants aren't easily distracted, take their signs more seriously.** *Example:* "When leaves show their undersides, / Be very sure that rain betides." *Explanation:* Rising air pressure affects various parts of many plants, causing trefoil stalks to swell, pondweed to sink, leaves to close up or turn over, and flowers of hawkweed, wild indigo, chrysanthemum, windflowers, marigold, daisies, tulips, and, the most famous floral barometer of all, the scarlet pimpernel, to close.

• Test out those sayings that suggest **planting times based on events in nature.** *Example:* "When the oak puts on his gosling gray, / 'Tis time to sow barley night and day." *Explanation:* English farmers traditionally planted barley at the time opening leaf buds and inconspicuous bloom gave the English oak *(Quercus robur)* a grayish cast. In most of England, that time is mid-April. Barley, though a hardy grain, will sprout prematurely and rot if planted too early in cold, damp soil. The oak, a late-leafing tree, breaks bud only when the ground has warmed. Barley ripens in 60 to 70 days, so too late a planting may, in England, throw barley harvest into a ruinous wet period. When grown for malt, the whole barley crop must be at the same stage of maturity; hence the need for planned planting.

A similar saying was once common in New England where some farmers still find optimum conditions for sowing and growth – warm soil for germination, and steadily increasing heat until near harvest – by planting corn "when elm leaves are the size of squirrels' ears." Both English and American practices reflect the wisdom of phenology, an ancient science that observes stages of plant development like leafing and bloom and uses this information to plan plantings and harvests for other crops.

• **Pay closest attention to sayings about the meterological phenomena directly connected with weather.** Because they are often of local origin and come from many parts of the globe,

continued



Cirrus clouds. Mares tales.

such sayings may contradict one another. As with all sayings, they must be applied intelligently and checked against observation.

Wind

Examples: "When the wind's in the west, / The weather's always best," and "When the wind's in the east, / It's neither good for man nor beast." *Explanation:* In the northern hemisphere major winds normally move from west to east. Air currents moving northward from hot equatorial surfaces encounter the Coriolis force* of the earth's rotation and are deflected to become westerly winds. Packing winds are abnormal winds that move counterclockwise (east to west) around the low pressure areas associated with storms.

Clouds

Examples: "Mackerel clouds in the sky, / Expect more wet than dry"; "Mares' tails, mares' tails, / Make lofty ships carry low sails"; and "When woolly fleeces spread the heavenly way, / Be sure no rain disturbs the summer day." *Explanation:* An attentive observer can easily read approaching weather in the form the clouds take. Mackerel clouds, actually altocumulus, resemble fish scales. They appear before both blustery cold front storms and slower moving warm front showers, so they almost always mean rain. To tell which kind of storm front is approaching, observe cloud sequence. Wispy mares' tails clouds precede mackerel clouds as a warm front moves in, but they are not to be seen before a cold front storm. The main difference between cold and warm front storms is their speed of passing: "Short notice, soon will pass; / Long foretold, long will last." Some clouds don't signify the approach of either kind of storm; indeed, the small, fluffy, white "fleeces" children often draw are a sign of fair summer weather.

Sun Color

Example: "Red at night, sailors' delight; / Red in the morning, sailors take warning." *Explanation:* Shakespeare and the Bible, along with many other writings both ancient and modern, set the wisdom of this saying in the form and context of their times. When the setting sun shines through dust particles on a dry day, it gives the sky a pinkish cast, and shows that dry weather lies to the west. Since weather comes from that direction, borne on westerlies, a pink sky portends dry weather. Truly red skies, on the other hand, are signs of approaching rain. A reddish sunrise means only that dry weather has moved on. Rain may, or may not, be following it. A more dependable sign of wet weather ahead is a gray evening sky: "Gray evening sky, not one day dry."

Rain and Snow

Examples: "Rain before seven, stops before eleven"; "When you see a patch of blue as big as a Dutchman's breeches, the rain will end"; and "When snow falls dry, it means to lie, / But flakes light and soft bring rain oft." *Explanation:* Rains usually end when temperatures rise, as they do towards noon on a normal day, or when quickening winds open up the cloud cover. When snowflakes fall through warm air they become large and soft and melt quickly, so large flakes fall just before snow stops or turns to rain.

As the snowflakes do stop falling and the weather warms, our old friend the woolly bear ventures out again. Maybe he'll attract less attention next fall. But then maybe next winter his prediction will prove correct. In the meantime, there will be time for gardeners to work up their own almanacs, based on observations of skies and plants. Some of the sayings may even help us to know when to plant and when to come in out of the rain. Even so, "People make almanacs, but God makes the weather."

CREATING OUR OWN ALMANAC

Are you ready to create our own PHS Almanac?

Let us hear some of your favorite quotes related to the weather and growing plants. Let us know if they've worked for you, where you got them, and if we can print them with your name.

Write to Jean Byrne, Editor, *Green Scene*, 325 Walnut Street, Philadelphia, PA 19106.

●

Marjorie Hunt became interested in the accuracy of weather sayings while writing the *1981 Planning Guide and Country Calendar* for Rodale Press. She has written, co-authored, or contributed to several other Rodale books and is now doing a study on phenology. She continues to observe the weather, her vegetable garden, and the wild plants on her small farm in Upper Bucks County.

*Coriolis force: Coriolis, 19th century French mathematician. The inertial force caused by the earth's rotation that deflects a moving body to the right in the Northern hemisphere and to the left in the Southern hemisphere: this deflection (Coriolis effect) is produced by the acceleration of any body moving at a constant speed above the earth with respect to the surface of the rotating earth.

Volunteer Gardeners Win National Recognition and Develop a Display Garden

Volunteers' good work attracts the attention of All-America Selections. The volunteers not only set up a display garden featuring AAS past, present and soon to be announced winners, they test flowers for seed companies and help to beautify Baltimore in the bargain.

by Amalie Adler Ascher



photos by Brooks Eichorn

Volunteers grooming test beds of geraniums in the fall. From left, Vivian Pierson, Norman Brooks, Shirley Byers, Charles Hoffman (rear), Doris Brumback (center front with white sweater), and Jill Williams.

The story of how a small band of Baltimore gardening volunteers achieved national prominence testifies to the power of commitment. When news of their work reached the executive secretary of All-America Selections (AAS), an organization sponsored by the seed industry and dedicated to promoting the best seed-grown flowers and vegetables, he invited them to become an official AAS Display Garden. It is one of 135 such gardens in the United States and Canada (among them are those at Longwood Gardens and Peddler's Village in Pa.). Others are located in Bermuda, England, Mexico, New Zealand and South Africa.

The hero of the story is Doris M. Brumback, a graduate of Goucher College (Towson, Md.) and at one time an administrator for an air line. Though she had no horticultural training, her instincts ran deep. A longtime visitor to Baltimore's Cylburn arboretum (also known as Cylburn Wild Flower and Garden Preserve), she was and is a member of the Maryland Ornithological Society, which meets at Cylburn. Brumback came often to fill the bird feeders, and as time went by volunteered to help maintain the herb garden. About 10 years ago, Gerard J. Moudry, chief horticulturist for the Baltimore City Bureau of Parks and director of Cylburn Park, turned the herb garden into display and experimental beds for annuals used in city plantings. Brumback and a Cylburn staff member assumed responsibility for them.

In 1976, three retired men, Kenneth Alton Browne, William H. Eichhorn and

continued



Bed of All-America winners (center) and other flowers being tested at Cylburn during the open house held the first Saturday in August. These award winners include the year immediately past, the current year, and the year before announcement. In the AAS bed are Pink Ruffles zinnia in the center, Rocket snapdragon, Blitz impatiens, Ice Queen geranium, Fantastic Light Pink zinnia, Small World Cherry zinnia and Sangria verbena, and skirting the edge, Snow Magic petunia.

Charles H. Hoffman joined Brumback, who by that time was undertaking the project alone, including testing plants on her own. The men had also been Cylburn regulars, attending lectures and taking part in other activities. The group took over 1,060 square feet, divided into 24 beds. They operated them as a test garden to evaluate in Baltimore's climate the performance of new seed-grown flowers (vegetables were added when official AAS status was conferred). The garden also provided the public with an opportunity to see and to compare the relative virtues of the plants. With publicity about the garden, the number of volunteers grew to the present 15.

If one plant can be said to have played a part in shaping destiny, it was Yellow Galore marigold. In that first year of testing, Brumback declared in print that it was "The best plant we ever had." When Kim Bodger, sales manager of Bodger Seeds, Ltd., the wholesale firm that developed Yellow Galore, heard what she said, he was so pleased that he immediately sent other seeds for testing. It was just what Brumback had been waiting for. All along she had been searching for a way to interest seedsmen to send her varieties *before* they were introduced. With the entrance of Kim Bodger into the picture, Cylburn became one of the few privileged gardens to receive experimental seed for trial, some varieties so new they are identified by number rather than name. However, as an official display garden (as distinct from an official AAS Test Garden, whose status is granted only to professional seedsmen and universities), James W. Wilson (AAS executive secretary at that time) assured Brumback that Cylburn would be receiving not only seeds of All-America winners for three years' running (the year immediately past, the current year as well as previews of the forthcoming year before the new introductions were announced) but proprietary varieties too, promoted independently by seed firms. Brumback, however, decided not to wait. Taking the initiative, she immediately sent letters announcing Cylburn's newly acquired status and requested seed for the coming year. In return, she promised to send detailed reports of the development and behavior of each variety, testing it alongside its comparison plant, which if not supplied, she purchases.

Funds to operate the garden are contributed by the Country-Suburban Garden Club of Baltimore, which has supported Brumback's project from its inception. The $350, which the club raises each year through a plant auction, is used to purchase additional seeds, fertilizer, mulch and other equipment including tulip bulbs for spring planting, but not compost or tools, which are supplied by Moudry from the Parks Department.

a full-time job without pay

With each passing year, the Cylburn project grows in scope, service, involvement and influence. For the volunteers, who generally work twice a week, it has become virtually a year-round commit-

ment. For Brumback, who spends nights planning layouts, paying bills, recording notes and placing orders, it is a full-time job without pay. (For her work, she received the Mayor's plate from the City of Baltimore, a citation from the City Council, and the Silver Seal from the National Council of State Garden Clubs, Inc.) Marian and Harry E. Probst work night and day. Joining the volunteers in 1979, they have become indispensable, compiling all reports sent to growers and handling the correspondence. Both work in the garden as well.

Though all the volunteers are dedicated gardeners, they are not trained horticulturists. They range in age from early 30 to 75, most in their early 60's. They are about evenly divided between the sexes. They come from teaching, library science, banking and administration.

garden preparation begins

Preparation of the garden begins in early January. Seeds are sown in the Bureau of Parks' greenhouses at Cylburn as soon as begonias and perennials, such as delphinium, arrive. The Parks Department furnishes the potting mix, flats and pots. An early start is needed for several reasons. Begonias, geraniums, petunias and impatiens require a long growing season, whereas pansies should be set out in late March if the weather cooperates. Furthermore, the development of plants must be paced to bring them to peak for the open house, held the first Saturday in August, when the public is invited to see the display and cast votes for their favorite flowers. However, the gardens may be visited at anytime from dawn to dusk, weekends and holidays included. On the occasion of Open House, the volunteers come out in force to answer questions.

Seeds are sown in flats except for geraniums and begonias, which are seeded directly at the bench in soil heated by cables. Sowing continues until late April with zinnias and celosia the last to go in. Zinnias grow very fast, and celosia, if growth is checked by holding in pots too long, receives a setback from which it never recovers.

The planting medium is steam-sterilized compost made at Cylburn by the Parks Department; it is mixed with perlite. Flats are watered by soaking them in a fungicide bath of a 35% Lesan wettable powder solution to prevent damping off disease. After draining, they are covered with a sheet of glass to hold in moisture. Seeds that need darkness to germinate are covered with black plastic.

In early March when seedlings have developed two sets of leaves, they are transplanted to 2-in. peat pots and treated to a second fungicide bath. One dose of Peters fertilizer (9-45-15) is given when color or vigor indicate the need for it, or if plants are growing too slowly. A second feeding is made when plants are set in the ground, and a week thereafter Osmocote 14-14-14, a slow-release fertilizer, is applied.

Pinching plants is a matter of catch-as-catch-can. The volunteers would like to pinch all plants that require it, but given their peoplepower and the number of plants, some miss out. Care is taken, however, to nip out the central spike of each petunia. Pinching also forces marigolds and zinnias to branch out.

The major difference between a trial and a display garden is that the first actually tests flowers in advance of introduction for purposes of awarding medals, whereas the second simply displays winners.

Throughout the summer, the volunteers, who also plant the beds, maintain them, deadheading flowers and weeding. The Cylburn Park crew attends to watering.

The progress of plants is evaluated about once a month, or three times a season. Varieties are apportioned among the volunteers, who note comparative progress, measure size of blooms, report dates of development and fading, overall quality and other pertinent factors. Throughout a plant's life, records are kept on rate and speed of germination and height of plants at maturity, abundance of bloom and spread, among other observations. To facilitate testing, beds are laid out in blocks to demonstrate the differing varieties of the same kind of flower. (From 6 to 12 plants at least are grown of each variety.) By placing, say, all geraniums or petunias or marigolds in close proximity, comparison is made easier and more meaningful. Where possible, a new variety is grown alongside its nearest counterpart already in commerce to judge if improvement is truly superior. Last year 360 varieties were tested; 25% of the flowers grown had not yet been introduced, and the rest, comparison plants excepted, were new to Cylburn. Two years ago, one bed was set aside for volunteers' favorites.

Each commercial firm sending seed receives individual reports on their own varieties. Those participating last year (other than AAS) were Bodger Seeds, Ferry-Morse, Harris Seed Company, Goldsmith Seeds, Pan-American Seeds, Claus and Company of France, Sluis and Groot and Royal Sluis, two Dutch firms, and from Japan, Sakata, and Takii.

In the fall the volunteers put the garden to bed and plant bulbs. After compiling reports, they make plans for the coming season.

more responsibility

Ever-expanding, the garden now comprises 67 beds and 5,000 square feet, each bed measuring 3 by 15 or 45 square feet. The volunteers' responsibilities have become broader. There was a time when Moudry would come to Brumback's aid, lending a Park crew when she was short-handed. But now, faced with budget cuts and reduced labor, he is turning to her. The volunteers supply all the annuals displayed around the City of Baltimore Conservatory in Druid Hill Park. In the past Moudry was given bedding plants for display by Maryland flower growers, many of whom now come to Cylburn to see what's new. Brumback and her team also lecture to garden clubs and put on a symposium as part of Cylburn's "Discoveries in Gardening" series presented during the winter, showing slides of AAS

continued

Volunteer Gardeners

continued

winners and other flowers tested as inspiration to fellow gardeners in planning their own displays. Attendance at these programs has been steadily climbing.

singling out the best plants

Given the number and quality of plants tested, can any be singled out for special mention? "Yes," replies Brumback emphatically. She calls Universal pansy "the pansy of the century." In the Cylburn trials, it continued to bloom into late October, needed deadheading only once and produced flowers as big as tennis balls. Universal pansy is a true perennial, Brumback says, at least for the Baltimore area, surviving both in hot, dry summers and cold winters. It begins to bloom heavily in early April and continues on through hot, dry weather, although then its size becomes noticeably smaller. Nevertheless, when cooler weather returns, flowers regain their size and last until mid-September or later, depending on the weather. During the winter, Universal blooms occasionally and even without protection was found to live on to the following year.

Blitz impatiens, an AAS winner, scored high in the Cylburn trials for duration of bloom, heat resistance and abundance of bloom. "It's the best flower," Brumback says, "to come along for both sun and shade." Yellow Galore continues to shine despite rivals; "It's the best hedge plant to be had," she says. The Janie marigold series (Janie Orange is an AAS winner), Brumback labels "fantastic," blooming exceptionally early and maintaining flowers virtually non-stop until frost. (Author's note: Janie Flame, new in 1982, has bloomed for me in mid-November.) Titan mix produced the largest flowers among petunias, which were the size of a coffee cup, but unfortunately didn't hold up well in rain, Brumback reports. The Jet series and Coco Scarlet semperflorens begonias required no maintenance, and AAS winner, Apricot Brandy celosia, was "sensationally" long-blooming, she said. As their favorites one year, the public picked Blitz and cosmos Diabolo.

Among the latest flowers to be tested at Cylburn are Sunglo Orchid portulaca, which held up well in the heat of summer and was the number one favorite of the public last year; three new double impatiens, Moreton Double, Duet and Rosette; and Lisianthus or Prairie Gentian, a flower hitherto unknown to the volunteers, but which they and visitors pronounced startlingly beautiful. Testing of Lisianthus is not complete and is continuing this year.

Having judged the professionals, how in turn are the volunteers rated. Former AAS executive director, Jim Wilson said, "Cylburn's plants are superbly grown and cultivated. The work provides an excellent model for cities where the planting efforts of municipal park systems have been hampered by tight budgets. By concentrating the creativity and willing work of a group of skilled volunteers on the annual and perennial flower area – and let's don't overlook vegetables – Cylburn has restored a beautiful educational attraction that may well be missing from future municipal gardens."

Brumback calls Universal pansy "the pansy of the century." In the Cylburn trials, it continued to bloom into late October, needed deadheading only once and produced flowers as big as tennis balls.

Observes Moudry, "Some volunteers take on a project, and the first thing you know, they're gone. But not at Cylburn. The group has grown enough flowers to plant an acre of display gardens at Druid Hill Park Conservatory. They are well-organized and meticulous, a terrific asset."

As for the volunteers' reward, Hoffman early on declared, "Working at Cylburn, you learn to identify plants and select seeds, picking up things as you go along. We all pitch in and enjoy each other's company, It's as if we had a job here."

A chorus of many voices hopes Brumback and her co-volunteers never find reason to quit.

Cylburn Arboretum

Cylburn Arboretum, located at 4915 Greenspring Avenue, Baltimore, MD 21209, is open daily from dawn till dusk. Comprising 170 acres, 40 of which are developed, its special collections include daylilies, perennials, viburnums, boxwoods, magnolias, pines, spruces, Japanese maples, flowering shrubs, hollies and ground covers. Besides the All-America Display Garden and test beds of annuals, it has a garden of the senses. (Telephone 301-396-0180)

What is the All-America Selections?

AAS is an all-volunteer organization of plant breeders and producers, who for the most part are connected with universities and seed companies. It was founded in 1932 by the Southern Seedmen's Association in Atlanta to develop improved varieties of seed-grown annual flowers and vegetables to promote their use in North America gardens.

Medals are awarded each year by professional growers of member firms, who act as judges. Entries, which are new and not yet marketed, are tested in varying climates at official AAS trial grounds conducted by universities and seed companies. Each is judged against the best existing variety of its nearest counterpart for performance in a home garden situation.

A winner must prove superiority in one or more categories: vigor, uniqueness, beauty, fragrance, resistance to insects and disease, hardiness, earliness, growth habit, and flavor in the case of vegetables. The major difference between a trial and a display garden is that the first actually tests flowers in advance of introduction for purposes of awarding medals, whereas the second simply displays winners. Although in the eyes of AAS, Cylburn is a display garden, Brumback carries out her own independent testing program.

In the AAS program about 80 new varieties of flowers and vegetables are entered by code number each year for trial. The identities of the developers are held secret to ensure fairness in judging, which is undertaken by private, commercial and governmental breeders the world over. Only an average of six to ten varieties merit an award.

A bronze medal is given for a "definitely different and more desirable type," a silver for a "truly outstanding and superior type," and a gold for "distinct difference and vast superiority to anything available before." Few silver medals are awarded and a gold is rarer still, especially for vegetables. Sugar Snap peas were one of the notable exceptions to win the top award.

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Amalie Adler Ascher is a frequent contributor to *Green Scene*.

A bumble bee pollinates the hardy passion flower next to Clematis 'Mme. Baron Veillard.'



photo by Charles O. Cresson

A PASSION WORTH THE PATIENCE: Passion Flower

by Charles O. Cresson

Most perennials come up in April and some in May, but often mid-June has arrived before the hardy passion flower or maypop *(Passiflora incarnata)* shows its first shoot. It seems to come up later every year. Last year after a hard winter it was mid-July before the first sign of life, and I was convinced that it was lost for sure. It has a reputation of being a late starter in the spring, but somehow I just can't adjust to it being quite so late. Once it starts, however, it doesn't waste time and a mass of stems quickly follow, with the flowers not far behind.

Although for hundreds of years several types of passion flowers have been commonly cultivated, our hardy passion flower or maypop is quite rare in local gardens. This is unfortunate since it must surely be one of the most exotic looking of hardy vines. Being a native plant it can be found in the wild from Virginia south to Florida, and west to southern Illinois and Texas. It has been known to survive the winter in Massachusetts.

The striking lavender blue flowers of *Passiflora incarnata* are slightly smaller than its more common tropical relatives but no less showy or beautiful.

The flowers are also interesting for their adaptation to prevent self-pollination. In my garden they are pollinated by bumble bees. As the bee crawls into the center of the flower it brushes its back against the low hanging stamens and acquires a cargo of pollen. The styles, however, are in a more upright position and safely out of reach. As the flower ages, the styles and the stamens change positions and a bee coming from another flower brushes its pollen-ladened back against the receptive styles which hang in the way. Nature has encouraged cross pollination by inhibiting self-pollination in the flower and setting up a system to deliver pollen from yet another plant.

Few hardy perennials bloom all season and the passion flower is no exception. However, its blooming season,

continued

Passion Flower
continued

stretching from late summer into early fall, does spread over a two-month period. Although it dies to the ground each winter, growth is very rapid indeed. The first blooms may open as early as a month after growth begins, when the vines have already reached a height of four feet. Thereafter, the progression of blooms continues. Although each blossom lasts only one day, a new bud or two opens almost daily on each stem. Eventually branching occurs and these in turn produce a succession of blooms. By the season's end, the stems may reach 20 feet in length.

how to train the vine

With 20 feet of vine, proper training is essential if the flowers are to be displayed at their best. As with other passion flowers, this hardy species climbs by means of tendrils. It therefore must have a suitable, but not necessarily large support to which the tendrils can cling and readily climb on a shrub, wires, or string. They tend to be most effective when they can climb on or among other plants at will and are gracefully draped and hanging.

The hardy passion flower combines well with *Clematis* 'Mme. Baron Veillard,' which has a similar color of rosy lilac and shares the same blooming season. They can be allowed to climb together, and the maypop will climb on top of the clematis. The maypop will show to best advantage if it is encouraged to hang down, bringing the end of the stem and the flowers closer to eye level. Another combination might include the golden clematis, *Clematis tangutica,* which also blooms from late summer into fall. Passion flowers also do well scrambling over earlier flowering shrubs or vines for an extended blooming season. This is harmless to the host plant unless the passion flower vine becomes too dense. Because it's herbaceous, that would not occur until late in the season, which would minimize damage. Many vines are more effective when planted with other plants.

Many people may not be happy for long with the hardy passion flower planted in a space all its own. I know of one instance where a planting around a pole in the middle of lawn was unsatisfactory because the pole was bare too long each summer. The passion flower was eventually taken out. Mine are grown on a wall with several clematis, a rose, a coral honeysuckle *(Lonicera sempervirens),* and an espaliered firethorn. They intermingle and there is always something in bloom. Of course a spring pruning, when the vines are thinned out, positioned, and tied in is essential to maintain order and insure that one vine does not crowd out another. Various hardy geraniums at the base of the wall complete the scene.

Why We Call It Passion Flower

The name passion flower refers to the symbolic resemblance to the passion of Christ. Early Spanish conquistadors associated the floral parts with the events of Lent leading up to Easter. The ten perianth parts (comprised of five petals and five sepals) represent the 10 apostles; Judas who betrayed Christ and Peter who denied Him are not included in the 10. The rays of the corona represent the crown of thorns. The five stamens represent the five wounds, and the three styles the nails used to nail Him to the cross. The Holy Trinity is represented by the three bracts on the peduncle.

As mentioned previously, *Passiflora incarnata* is a hardy herbaceous vine that dies to the ground naturally each fall, even in Florida. I once kept a young plant in the house for the winter. It behaved in the same manner and sprouted the following spring, after which it was planted out. Establishing plants sufficiently to survive the first winter can be just a bit tricky. It took me two tries, possibly because the roots had not grown deeply enough to escape the extreme cold. I prefer to transplant a young shoot as early in the season as possible for this reason. Mulching for extra insulation also seems a good idea.

Once established the hardy passion flower may spread quickly by underground rhizomes. I do not wish to imply that it will become a pest because the shoots are easily removed by pulling, and our colder winters seem to encourage better behavior than in warmer climates.

propagation, soil and fruit

Propagation is most easily accomplished by transplanting a young shoot. These are easily removed since they usually show up a few inches or sometimes a couple of feet from the parent plant. As with many perennials, cuttings of the emerging shoots in early summer should root easily, although cuttings from older stems are not successful.

Hardy passion flowers seem adaptable to a wide range of soils. I have seen them grow well in heavy clay. Mine thrives in a loose soil fortified with abundant organic matter, which probably accounts for its vigor. It can be grown in a ground cover to provide some winter protection or among the roots of its host plants.

Of interest to some is the edible fruit of the maypop, which ripens to yellow in the fall, although tropical species are said to provide better quality fruit. In fact, it was cultivated for this purpose by the Indians. Unfortunately, I have been unable to ripen the fruit, possibly because our summers are too short. It probably needs a good hot sunny south wall.

Passiflora lutea is another native species with small inconspicuous yellow flowers. It would be an interesting novelty if properly placed. At Skylands Garden in New Jersey, for example, its small flowers add detail to a woodland path where it is planted amongst the Flame Azalea, *Rhododendron calendulaceum,* where it provides another season of bloom.

As I write in late August, the hardy passion flower vine has become one of the most striking plants in the garden. Its exquisite flowers excite visitors. I hope others will find the patience to succeed with this intriguing flowering vine.

Source

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Charles O. Cresson is horticulturist at The Nemours Foundation, former estate of Alfred I. duPont in Wilmington Delaware. Cresson received a degree with a major in horticulture from the University of Vermont and spent three years studying horticulture in England. An avid gardener, Cresson concentrates on perennials, bulbs and half-hardy plants among other things in his private garden.



photos by Elouise Mattern

"Hi!" said the squash. He seems pleased about his blue ribbon.



No more burnt toast.

The Jenkintown Home and School Flower Show

by Elouise Mattern

Jenkintown is a small suburban borough north of Philadelphia with a small, neighborhood, no-buses school system. The people of the town have resisted trends toward the multi-unit, spread out consolidated school district. In a school that dates back to 1876, traditions flourish.

One of its most colorful traditions is the annual Home and School Flower Show, this year scheduled for September 20.

The flower show is an almost 30-year tradition, sparking creativity and delighting all of the elementary school children. For 20 years the show has been accredited with the show schedule approved by the Garden Club Federation of Pennsylvania, District One. It is sponsored by the Old York Road Garden Club whose president this year is Eleanor Feeley.

Jenkintown Home and School Association nurtures the flower show. Hundreds of parents have devoted thousands of hours over the years to provide this creative outlet for their children.

The show itself has gone through quite a metamorphosis. At one time it was a part of the school fair. And there was a time when parents exhibited, too. Senior and junior highs were more active previously. Now the show's creative essence is simply a child, flowers, greens, a container and an idea.

This essence is exactly what Grace Land had in mind when she did the spade work for the first show. After she had staged a flower show in another school, she was asked to do one for Jenkintown where her son went to school. It took one principal who wouldn't take no for an answer and one parent/teacher who cared about children and nature to build the foundation.

Land, a retired teacher and a busy volunteer, still lives in Jenkintown. She sees the present form of the show as a great boost for the young designers. Originally, she emphasized the children's effort, and the format is still followed. The day before the event flower arranging is demonstrated; color, height, containers, designing for special occasions are discussed. On the morning of the show the children are on their own, with the bounty of Jenkintown's fall gardens and contributions from some

continued



Flower arranging is serious business for, from left, Matt Tierney and Ben Gealt, both fifth graders.



What a friendly lion.

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Call: 625-8280 or write for schedule:
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325 Walnut Street
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Billy Posner and Jeannie Wynn, both fourth graders, enjoy their classmates' crafty creatures.

generous flower shop owners at their disposal.

Children may bring their own flowers from home. Some grow vegetables and flowers over the summer and enter them in the horticulture division.

The fourth grade children have the most fun – or so it seems – because, traditionally, their design class creates animals from vegetables or fruit, fresh or dried. There are squeals of laughter as they put together their cauliflower lion, eggplant penguin or banana centipede.

One design class is made up of blue ribbon winners from the year before. Last year, for example, the blue ribbon class was a flower design using a cup or mug as a container, and the title was Tea for Two interpreting the theme, Music, Music, Music.

Themes have played an important role in the show. This year's has the alliterative title of Fabulous Fall Fantasies. Previous themes have ranged from Election Fever to Movie Memories, from The Greatest Show on Earth to Rhapsody in Bloom.

Judges have come from all over southeastern Pennsylvania and as far as Ocean City, New Jersey and Wilmington, Delaware and have found it to be an exciting flower show. "Everything so immaculate"; "amazed at what the children accomplish." One was pleased by the "imaginative things young people are doing." "What enthusiasm!"

One of the names seen frequently in that big planning book of Jane Bales was Helen Oliver. And about the show itself, Oliver volunteered often because, as she said, "It is one of the nice things we have in this community. The children bring to it a freshness and a lot of artistic ability. Some of Jenkintown's gardens reflect the enthusiasm generated there."

Will there be a flower show in Jenkintown next year? As surely as azaleas will bloom in the spring!

HOW TO START A FLOWER SHOW AT YOUR SCHOOL

- Start early. Find an interested garden club to sponsor you. Some garden clubs are affiliated with the Garden Club Federation of Pennsylvania. If the Club is affiliated you can run an accredited show, which means the show must meet certain established standards and is eligible for local, state and national awards.
- Secure a large room for exhibits, e.g., gymnasium, church hall, dining hall, etc.
- Plan your show around a date when flowers and exhibitors are available.
- Choose a theme. Write a schedule of the competitive classes you want in the show, e.g., flower arranging, vegetables, house plants, etc. If you have dried flower classes, exhibitors should know well in advance of the show.
- Set up some training sessions for prospective exhibitors.
- Plan an educational exhibit, e.g., a study of herbs or look at the varieties of specific plants, e.g., geraniums. It is as important to teach as it is to display flowers.
- Publicize the show, first to potential exhibitors and then to potential audiences.
- Secure judges.

●

Elouise Mattern has worked in communications for about 15 years as a journalist and in public relations. Gardening, however, is an avocation and wild flowers a special love. She is in the process of a career transition, starting horticulture classes this fall at Temple University, Ambler Campus.

the plant finder

– A free service for *Green Scene* readers

If you can't locate a much wanted plant send your name and address (include zip), the botanical and common name of the plant to Plant Finder, Green Scene, PHS, 325 Walnut St., Philadelphia, PA 19106. People who have the plants or seeds you want will contact you to make arrangements about selling or giving them away, mailing, etc.



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Seeds of tropical tree ***Dendropanax arboreus.*** Private or commercial source.
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***Endymion non-scripta* 'English Bluebell.'**
Contact: Maureen A. Deans, 125 Bruce Rd., Washington Crossing, PA 18977

▼

Daffodil 'Narcissus' cv. Chinese White, cv. Vanilla.
Contact: Mary Green, Box 176, Glenmoore, PA 19343



growing interests

sweet peas

In years gone by many gardeners raised sweet peas *(L. odoratus)* outdoors; today few gardeners attempt to grow this worthwhile crop. My humble opinion is that they are missing one of the greatest pleasures of gardening in the open vegetable patch.

When late June and July roll around those hardy working souls, who started last fall to prepare sweet pea trenches, are in their seventh heaven. Having had a favorable season, with a reasonable amount of rain, the vines are 5 ft. high and producing flowers on 10 in. stems with bloom clusters from 3 to 5 on a stem.

Like all hobbies as rewarding as this one, manual labor, careful planning and timing are involved. In late fall, dig a trench 2 ft. wide, 2½ ft. deep and as long as practicable. The location should be on soil fertile enough to grow good vegetables. The trench should run from south to north in full sun so that the row receives the benefit of sun travel all day long. When removing the soil from the trench some of the poor lower soil should be discarded. Break up the bottom of the trench and add organic matter. The organic matter may consist of 12 to 15 in. of any of the following: compost, rotted manure, hay (rotted), straw, leaf mold, fresh manure.

With the last four ingredients a good dressing of 10-6-4 fertilizer and limestone are recommended. Refill the trench and rest up until next year on the 17th of March or as near as possible depending on the weather.

The best seed varieties in the Philadelphia area are Galaxy*, Multiflora*† and Royal Family‡; do not depend on one variety, sow all three if obtainable. All of these varieties of sweet peas come in assorted colors only. At one time it was possible to obtain separate colors, but this unfortunately is no longer true.

Around March 17th, rake over the area, cleanly and smoothly, and install support for the vines. You can use a 6-ft. fence of turkey wire, coarse chicken wire or nylon netting; be sure it's reasonably rigid especially in a windy location.

In March, sow the seed in trenches 2 in. deep on each side of the fence; space seed 3 in. apart, cover with fine soil and lighty tamp down. Do not be discouraged, no sign of the growing shoots will appear until sometime in May. As an extra precaution it is a good idea to sow some seeds of each variety in 3-in. peat pots (3 to a pot) placing these in a sunny coldframe or under fluorescent lights in a cool location preferably with a night temperature of 45° to 50°. These will take care of any blank spots in the rows in May. After the plants appear above ground in a normal wet spring, no watering is necessary. In the event of a dry spring it is advisable to water the row copiously once a week until the weather is more favorable.

While vines are growing it may be necessary to assist their clinging habits manually, especially in windy locations.

When flowers appear and are fully formed on the stems, it is essential to keep them picked daily. Sweet peas, once they start to go to seed, stop blooming and deteriorate rapidly.

Your rewards after all this labor are daily bunches of long-stemmed flowers in many assorted colors with a heavenly fragrance, lasting indoors for three or four days.

Charles Becker, Jr.

Sources:

* W. Atlee Burpee Co.
300 Park Avenue
Warminster, PA 18974

† George W. Park Seed Co., Inc.
Greenwood, SC 29647

‡ Stokes Seeds Inc.
737 Main Street
Box 548
Buffalo, NY 14240

●

Charles Becker, Jr. was vice-president of PHS from 1958 to 61. With help, he is currently enjoying an acre of annuals, perennials, bulbs, rock gardening and vegetables.

begonia grandis

Each year, starting in mid-August when the marigolds are reaching their prime and the cushion mums are starting to bloom, my greatest pleasure comes from a wonderful stand of *Begonia grandis* in a semi-shaded bed along the far side of a pool that rims the brick terrace. The red stems and ovate, red-veined leaves of the begonia are attractive in themselves all summer, but when the flower stalks with their dangling panicles of geometric pink blossoms arch above the foliage, it really becomes a sight to behold. And it remains that way until early October.

The first time I was given a small clump of *Begonia grandis* (formerly *B. evansiana*) it didn't survive, even though it was planted in exactly the same spot where several dozen plants flourish today. I'm not sure what the problem was; probably I did not water it enough during the dry months of summer. In any event, I went back to my source the following spring and got a second clump, which became the progenitor of all the plants I have now. Since then I have had no problem with transplanting in either spring or fall, although, remembering my first "blooper," I'm careful to water the spring transplants especially well through their first summer. The bulblets that form in profusion in the leaf axils of mature plants now drop regularly into the grass walk that borders the bed and sprout the following spring. Rather than cut them down with the lawn mower, I dig this new generation out and pot them up for donation to fall plant sales and giveaways.

One of the best recommendations for *Begonia grandis* is that it is winter-hardy in the Philadelphia area without special protection, even when we have successive "killer" winters, like those of 1981 and '82, with temperatures well below zero. (*Hortus III* classifies the plant as hardy to Zone 7, which takes in the southeastern corner of Pennsylvania and the southern half of New Jersey.) The begonia is listed as native to China, Japan and southeast Asia. I can understand the first two, but I can only assume that it must like the cool high mountains of southeast Asia, not the steamy jungles.

I like the plant best when it is growing in a mass, rather than as individual plants scattered here and there. If it likes a location, however, the individual plants will become good-sized clumps soon enough. The soil where I have the largest planting is fairly loamy and is backed by a low-growing *Juniperus horizontalis* 'Repens' and its falling needles help to keep it loamy. Some of the flower stalks to the rear of the bed even push their way up through the juniper branches, adding to their charm.

I also have what I consider to be a "problem" bed at the very back of the

garden, which is fine for bulbs in early spring and for astilbe in June, but not much else because overhanging dogwood branches keep it both too shady and too dry through the summer. (It's hard to reach with a hose.) I tried planting some *Begonia grandis* there two years ago and it is doing well even in the drier soil. My guess is that in another couple of years the "problem" bed isn't going to be a problem any more in summer, but rather another lush stand of these begonias.

Begonia grandis is ideal to overplant in areas that are massed with daffodils, narcissi and other spring bulbs. It is



tuberous so its roots are shallow. The first ruffled edges of the young leaves don't appear until all but the latest tulips have finished blooming and the foliage of early bulbs is well on its way to maturity. The begonia leaves grow slowly at first so there's no problem with cutting off the sunlight so vital to bulbs for growth the following year. By midsummer the full-grown plants stand about 15 to 18 in. high before the flower stalks start to reach above the foliage. The stalks, incidentally, are strong and fine for cutting. The panicles of blossoms add both grace and elegance to arrangements of early fall flowers, largely because they are so different from the rest.

Once established, *Begonia grandis* literally takes care of itself.

George Harding

●

George Harding is a frequent contributor to *Green Scene*.

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After the bogs have been flooded, mechanical harvesters pick cranberries off the vines. See page 4.


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A Victorian Christmas.
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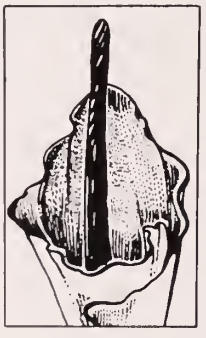
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DECORATING FOR A CHRISTMAS VICTORIAN



art by Barbara Bruno

by Barbara Bruno

For many Victorians, the festive trappings of Christmas had to be made at home. Most families had little money for manufactured items, and relatively few seasonal temptations were offered in shops. Absence of store-bought frills did not dampen the spirits of our enthusiastic and inventive ancestors. As Christmas approached, they took on the task of home decoration with the same zest that they displayed in handicrafting gifts, tree ornaments and elaborate edibles.

Native and garden greenery was the material of choice and necessity for the Victorian householder. Glossy leaves and deep-toned pine and spruce boughs pleasingly set off last century's ornate interiors. This basic natural material was embellished with great imagination, using whatever was at hand and struck the fancy of the handicrafter. Many of these decorations would make fine additions to a contemporary Christmas celebration.

trinket chaplet

For some Victorian families, Christmas day's celebration began with a hearty breakfast and the unwrapping of miniature gifts that had dangled invitingly from a trinket ornamented wreath. This "trinket chaplet" itself was a pretty tradition, suspended over the table's center from the prismed arms of the dining room lamp. The small wreath was fashioned with delicate-leaved greenery and profusely decorated with a bright collection of lilliputian ornaments and the showiest of edible confections. Seasonal candies, such as sugar plums in gold-mesh sacks and candy canes were favored. Sprigs of holly, miniature toys, and elaborately iced cookies baked especially for this purpose dangled beneath the circlet on short lengths of multicolored ribbon. A suspended tissue wrapped parcel for each family member completed the decoration.

To make a trinket chaplet you will need a styrofoam ring, green burlap, wire, floral picks, evergreens, several yards of narrow, multicolored ribbons, and a piece of wider ribbon for end bows and hanger. A garnish of edibles, miniature decorations, and tiny real or make-believe gifts will complete the chaplet.

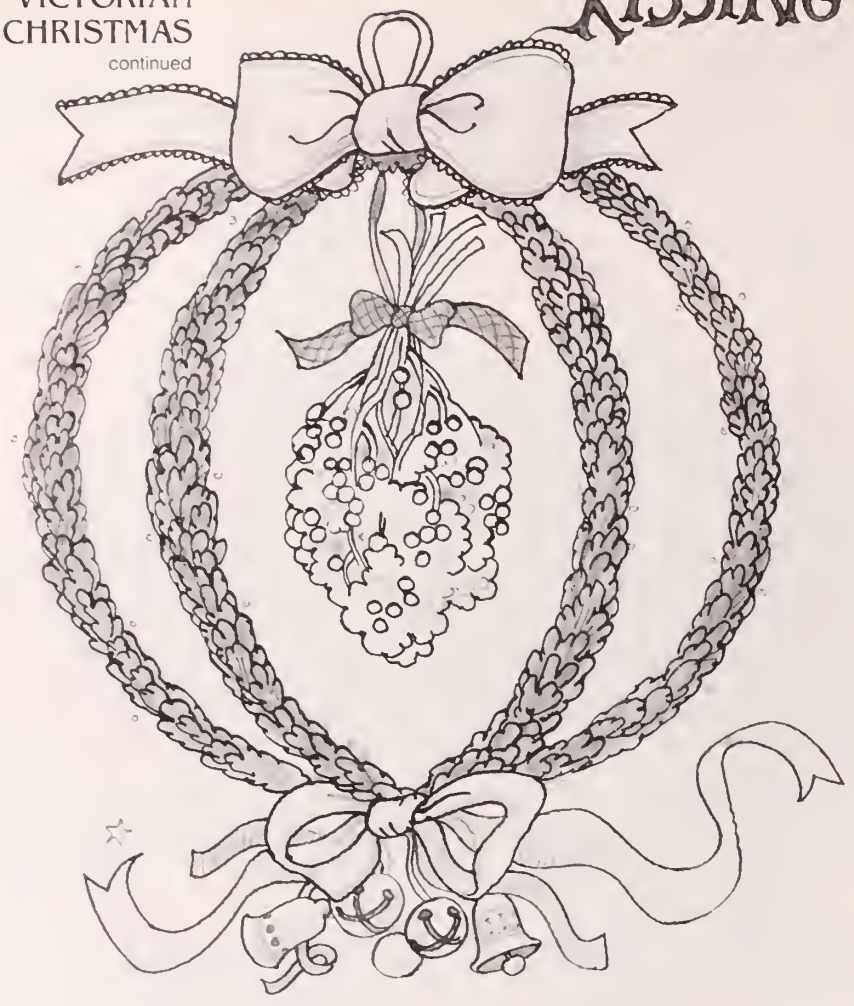
Victorians favored the soft and mossy beauty of ground pine *(Lycopodium* spp.) for this wreath. Today this wild woodland plant is in short supply and possibly endangered from over collecting. Boxwood is a lasting and attractive substitute. Any other fine leaved greenery on hand might be used, although the wreath may not prove to be as long-lasting. The styrofoam ring, obviously an untraditional choice, is an easy-to-use base and is light in weight, an important consideration for any decoration to be suspended from an electrical fixture.

Camouflage the styrofoam ring by winding it with a strip of green burlap. Add two wire loops so that it can be suspended horizontally below a hanging lamp. Evergreens should be soaked overnight before the wreath is assembled. Wire larger sprigs in place on the chaplet, then fill in with small bunches attached to floral picks. Keep greens compactly following the line of the ring. A perfect cover of greens is not a necessity. Ornaments can fill in any gaps.

To achieve a well-balanced result, attach the chaplet to the light fixture before decorating. Use floral picks to assist in placing the ornaments and also to secure short, random lengths of ribbon suspending an eye-appealing array of goodies beneath the wreath.

continued

KISSING BALL



mistletoe kissing ball

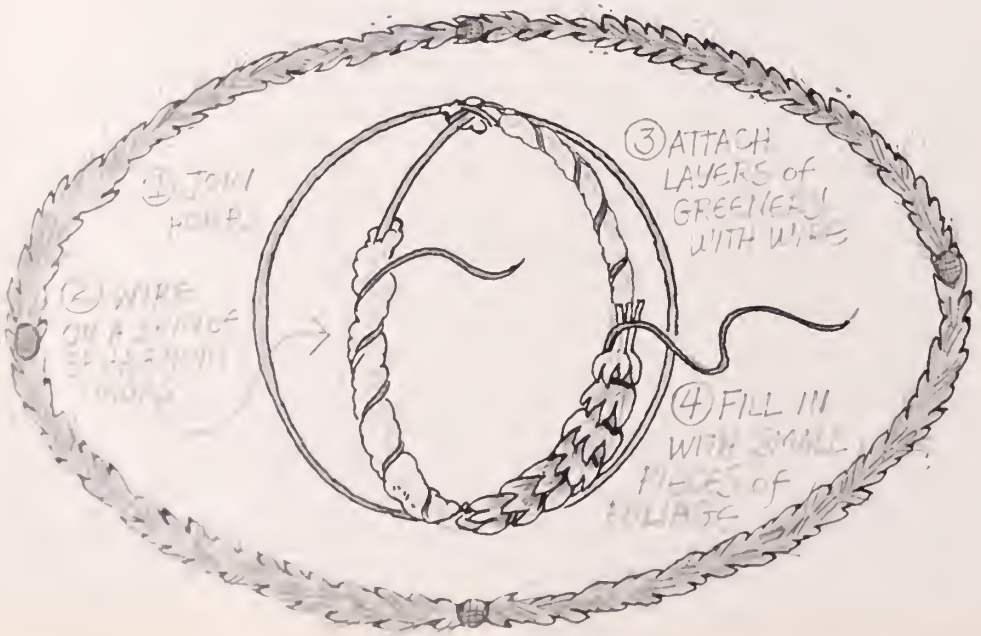
Using a bunch of mistletoe to increase the holiday's merriment is an old custom. Given the past century's unswerving devotion to "gilding the lily," it is no surprise that Victorian handicrafters were not long content with a mere beribboned poesy. Double circles of seasonal greenery garnished with a splendid bow set off the ghostly berries and transformed the bunch of mistletoe into an ornamental kissing ball.

To make a kissing ball you will need mistletoe, two wooden hoops or twig rings, fine textured greens, wire and a large bow. A handful of sphagnum moss will keep greens fresh for a longer time. Other seasonal decorations, bells, pinecones or the like can be added as taste dictates.

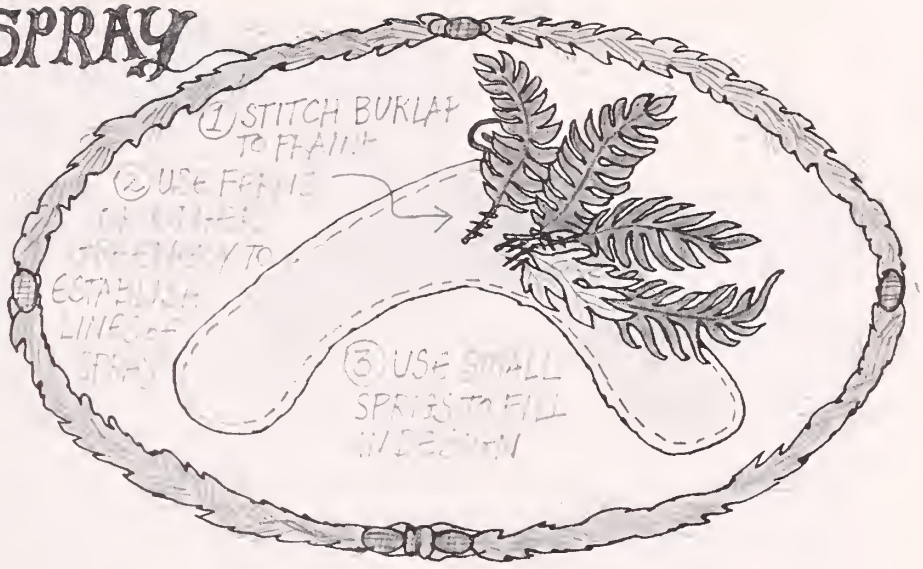
Victorian crafters used supple lengths of willow wand or similar materials for the circular frames. Embroidery hoops work as well and may be more readily available. The size of the hoop will be dictated by its placement. A doorway ball must not interfere with passage. A kissing ball hung from a hallway ceiling may be made to a grander scale. Last century's instructions suggested using ground pine, but any miniature leaved greenery will do. Strands of glossy, tiny-leaved ivy are easily worked, having the advantage of long supple lengths of stem, and give a pleasing period look to the decoration. Whichever greenery you choose, soak it overnight before you attach it to the frame.

Wire two identical circles together at right angles to form the frame. Wire on a thin skin of damp sphagnum moss if you have some at hand. (A wad wired to the hoop's juncture makes a sturdier ball.) Overlapping layers of greenery should be secured in place with a continuous wrapping of wire. A tightly disciplined cover of greenery best shows the ornament's lines. Finish smoothly by inserting snips of greenery where needed. Depending on your choice of foliage, you may start at the top or bottom. The decision is dictated by which way the leaves look best from below.

Suspend the mistletoe bouquet in the middle of the frame with ribbon or wire. Top the ball with a hanging loop and a properly ornate bow. If there is room below, the ornament can be finished off with trailing ribbons and a bow or arrangement of seasonal fancies suspended beneath the sphere.



MANTEL SPRAY



mantel spray

Directions for making a mantel spray appeared in numerous variations in the many popular Victorian periodicals. These sprays, fashioned from a variety of dried and fresh greenery, were used, not only to ornament the fireplace, but were also hung over ornate mirror or picture frames. "Mantle sprays" were also used to fill any remaining rift in the holiday decorating scheme over window or door.

The foundation of a spray was often large dried fern fronds pinned or stitched to a frame-stretched backing. Live and other dried materials were used to enliven the design. Boxwood and holly were favored. A great variety of dried flowers, pinecones, berries, or grass tassels were used for decoration. When these gracefuly arching assemblages were fixed over richly curtained windows, long ivy stems would be set to trail attractively from spray ends and scattered sprigs of green were pinned unobtrusively on curtains to enhance the cascading effect. If treated with care and spruced up with additional fresh material, a mantel spray could be used for several seasons.

To make a mantel spray you will need a wire coathanger; coarse weave, green fabric, such as burlap; needle and thread; fine wire; a variety of dried and fresh greens; and an assortment of decorative extras, like dried flowers, fresh berries, grass seedheads, pinecones, and ribbons. Bend the coathanger's handle into a small, unobtrusive loop for hanging the spray. Shape the hanger into a gracefully downward curve on each side of the handle, leaving a middle space between wires. Using the wire shape for a pattern, cut a piece of burlap large enough to overlap the form. Stitch the burlap to the hanger, all around.

Dried fern fronds were favored by Victorian handicrafters to establish the lines of the spray and to provide a sumptuousness so admired in the last century. The decorators recommended first dipping the greens in melted parafin to give the fragile foliage an added strength. The fronds were pinned or stitched on, one by one. If there was space a plume of fronds was arranged to elegantly crown the decoration. Others were allowed to dip gracefully at the ornament's ends. After the spray's outline had been established with ferns, small, lightweight sprigs of living plants could be used, along with other dried material, to fill in the design. Fresh greens that dried attractively as they aged, such as boxwood, allowed the spray to be used the following season with only minor additions.

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Instructions for these decorations and many others will be included in Barbara Bruno's forthcoming book, *Victorian Christmas Crafts,* to be published in 1984 by Van Nostrand Reinhold Co., Inc.



photos courtesy of Longwood Gardens



Fukayama. Cascade style. Training begun 1981.

by R. J. Armstrong

Miniature Tree Chrysanthemums of Longwood

It looks like a tiny tree. It flowers in the fall of the year. The flowers come in many different colors and types, and it can be trained into nearly any style imaginable. It can be created in less than one year but may live to be many years old. Nearly everyone can afford it, and it can be grown with minimal care and facilities.

This rather wonderful thing is a "Chrysanthemum Bonsai."

Chrysanthemum plants can be made to look like tiny trees even though botanically they are herbaceous perennials. Normal bonsai may live to be several hundred years old, just as will their counterparts in nature. Chrysanthemum bonsai, however, are much younger, usually one year old or less.

Since many bonsai plants also flower, what is the advantage of having chrysanthemum bonsai over other bonsai if they are short-lived and usually have to be regrown every year?

Probably the best answer is that this is a relatively unusual way to grow the chrysanthemum plant. Indoors at Longwood Gardens, November is the time for the celebrated Chrysanthemum Festival, with its cascade and topiary as well as standard mums. Chrysanthemum bonsai add a unique dimension as well as a special splash of color to the bonsai display, which at this time is taking on more subtle fall hues.

For gardeners on a limited budget, a chrysanthemum bonsai can be created quickly and inexpensively. Although an advantage, a greenhouse is not an absolute necessity, and a sunny window will do.

Still another plus is the very nature of the chrysanthemum itself. It is an adaptable plant. If one uses the right cultivar, it is possible to train it into almost any imaginable shape.

Some varieties of mum are better suited for the creation of chrysanthemum bonsai than others, and the best are those with small leaves and small flowers. Most are from Japan, and one called 'Shiro-Futaye,' with small, single yellow flowers is most admired by the Longwood growers.

Other excellent varieties with good small foliage and growth habit include 'Ohgonden' (yellow flowers), 'Ishinami' (cream-white flowers), 'Shigeru No Homare' (white anemone flowers), 'Utage' (yellow flowers), and 'Hakuunden' (white flowers).

With some tree bonsai, the gardener has to make do with the branches as they occur on the plant. They can easily be pruned off, but it is usually impossible to add a branch where one does not exist. Since chrysanthemums grow so rapidly, one can encourage a bud to grow at a particular point on a stem and in short order have a new branch just where it is wanted.

As mentioned earlier, chrysanthemum bonsai are generally short-lived, usually less than one year, but it is possible to keep them longer, and in theory at least, durability is unlimited under the right conditions. The oldest such bonsai at Longwood Gardens is a 10-year-old plant of the variety 'Shiro-Futaye.'

While is it possible to have a chrysanthemum bonsai of almost any size, in practice most are less than one foot high. The shape and style are up to the grower, but the mums are usually styled to appear tree-like. They may be grown singly, or with two or more together to look like a small grove.



Koshi No Yuki. Broom style. Begun 1981.



Shiro Futaye. Informal upright style. The oldest plant in the Chrysanthemum Bonsai display at Longwood was begun in 1973; it is now 10 years old.

Gardens

cultural directions

The culture of chrysanthemum bonsai varies depending on the grower and facilities. At Longwood Gardens, Les Lutz, who until recently was in charge of the bonsai collection and is now the conservatory manager at the New York Botanical Garden, developed the following cultural schedule, which worked well for him.

The first thing to do is to decide on a style. Unless space is a critical factor, it is not a bad idea to start several of each style desired. Once the plants are well on their way and more room is required the less desirable ones can be discarded.

At Longwood we take some cuttings in December and put them into 3-in. clay pots as soon as roots develop; others are purchased as rooted cuttings from commercial suppliers. The home gardener should take cuttings no later than the last week in February, although rooted cuttings might be purchased as late as the first week in March.

After the cuttings start to grow, we encourage a side bud by removing the main shoot. To do that, pinch out the tip of the cutting and allow the strongest

continued



A young visitor and companion study a group planting of bonsai chrysanthemums.

Miniature Tree Chrysanthemums

continued

resulting branches to remain. This side branch then becomes the trunk of the "tree."

By mid-February to early April the plants are transferred into 5-in. clay pots used as training containers.

At Longwood, the mums are fertilized at every watering with a half-strength balanced solution. If this is not practical, then they should be fertilized about once every two weeks in the beginning phases of growth, and once a week later in the season when growth is more rapid.

After all danger of frost is past (by May 15 in southeastern Pennsylvania), the plants should be moved into 7-in. clay pots and grown outside in full sun. Provide some protection from the wind.

As the mums grow, terminal pinching to encourage branching, and wiring of the resulting branches, is carried out throughout the growing season to create the desired shape and style. When wiring and shaping a chrysanthemum, choose branches that are large enough to be manipulated yet young enough so that they can be bent without breaking. It is a good idea to allow the plants to wilt slightly before bending since this will lessen the danger of snapping a brittle stem.

Copper wire is then twisted around the stem, usually starting on the trunk and later extending out into the developing branches. The wire should be heavy enough to retain the desired shape yet not so stiff that it cannot be easily bent. Take care not to wind the wire too tightly. Once the stem has hardened (after about a week), remove the wire so the stem will not be damaged or disfigured.

Complete pinching the vegetative buds by early September. A pinch any later than that would remove flower buds that are being initiated during the shorter days of late summer, either delaying or preventing the plant from flowering.

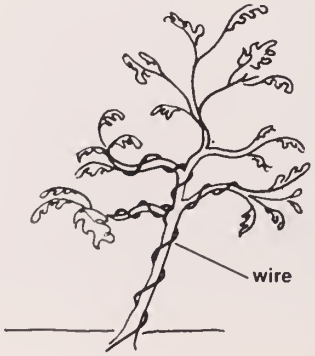
During the growing season, repot the plants three times, removing one-third of the roots and replacing one-half of the soil each time. Remove the soil from the outer half of the root ball using a pointed stick; trim the roots back about one-third away from the tips. Then carefully work the new soil in. *It is important that the soil*

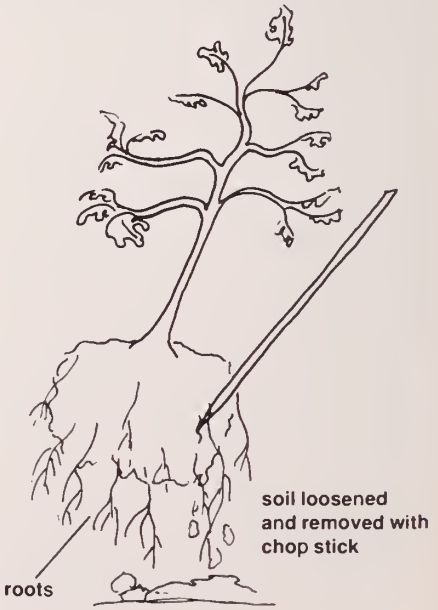


How group plantings are started.



Group planting begun in 1981: Hakuunden (2 plants at left), and Miyako No Tsuki (plant on right).







This nine-year-old chrysanthemum is among the oldest in the country.

be worked around the roots and not just applied on top and packed down. That will provide an optimum environment for new roots to develop and to absorb moisture and nutrients.

When flower buds are set and have developed (usually at least ⅛ in. in diameter), move the plants into smaller bonsai show containers selected to compliment the style and size of the plant. The plants are not set back by this fourth and final repotting; from one-half to even two-thirds of the soil and roots can be removed with little or no effect.

Disbudding is necessary *just before* flowering. The buds are allowed to develop and just open a bit before *all* but one flower per bunch are removed. Flowers should appear singularly and should not touch when fully open. If buds are removed before they begin to break, the plant will force more strength in the remaining flowers, and cause them to become larger and less desirable.

When blooming is complete, remove all flowers and return the plants to the growing containers. At this point the mums at Longwood are placed into a relatively warm greenhouse (58°-62°F nights and 62°-65°F days) with lights on at night to discourage budding. Under these conditions they continue to grow slowly and never go completely dormant. If the plants are grown under cooler conditions, the mums will go dormant. Because they are herbaceous you may lose some of the branches when breaking dormancy.

During the winter months keep the plants somewhat drier. Fertilize only every two or three weeks. As the weather warms in early spring and the plants grow more rapidly, increase both water and fertilizer.

After the plants have begun to grow again, repot as before into the same size (7-in.) container. Pinch continually until early September when the flower buds are initiated for the next show.

Chrysanthemum bonsai are not easy to overwinter, so it's probably more convenient to start anew each year. But once you've become attached to a favorite plant you've nurtured along for so many months, it's not easy to discard it.

Longwood's miniature tree chrysanthemums are on display from late October until the first of December and may be seen with the bonsai collection housed within the conservatory complex.

Chrysanthemum Bonsai Timetable

Early March (no later)	-	Procure rooted cuttings.
Mid-late March (once plant starts to grow)	-	Remove terminal shoot.
Early April	-	Repot into 5-in. clay pots.
Mid-April to early May	-	Initial wiring and shaping of trunk.
Mid-May	-	Repot into 7-in. clay pots. Move outside into full sun.
Throughout summer	-	Continue wiring, shaping (including pinching to encourage branching), and pruning every 10 days.
Late July	-	Repot (into same 7-in. pot).
Early September	-	Stop pinching, wiring, etc. Fertilize only every 10 days (half-strength solution).
Early October	-	Flower buds have set. Transfer to show container, if desired; remove one-half roots and soil to fit container.
Late October	-	Disbud all but one flower bud per cluster.
Late October through November	-	In bloom

Sources for Mums Suitable for Chrysanthemum Bonsai

Sunnyslope Gardens
8638 Huntington Drive
San Gabriel, CA 91775
213-287-4071
(They carry most of the plants mentioned in this article as well as others.)

Kings Mums
P.O. Box 368
Clements, CA 95227
209-759-3571

Chrysanthemum Festival at Longwood Gardens

The bonsai mums will be on display this year from November 5-20, 10 am-5 pm, as part of our annual Chrysanthemum Festival. The Festival features 15,000 chrysanthemums indoors, the opening of an animated Colonial Village (formerly at Lit Brothers Department Store in Philadelphia), gallery displays of Pennsylvania crafts, fresh vegetable arrangements, and many performances and demonstrations. This year's theme is "Pennsylvania's Bountiful Heritage."

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Robert J. Armstrong is geneticist in charge of the Research Division at Longwood Gardens.

The Life and Death of the Estate Greenhouses

by Valencia Libby



From: *Some Greenhouses We Have Built in the United States and Canada* 10th ed Lord & Burnham Co. *circa* 1920.

This greenhouse or sunshine room was designed for a country home on Long Island early in 20th century.

As a newcomer to the Brandywine region, I was fascinated by the rumors I heard in horticultural circles of the splendid old greenhouses on numerous private estates. The names of Applecross, Dilwyn, Gilbraltar, Granogue and others would come up, but when I inquired further few people had actually seen the greenhouses or knew what condition they were in today. What were they like? What were they used for? And were any of them still in service?

During the spring of 1982, I visited many of the private Brandywine estates examining the greenhouse structures and interviewing the gardeners. The new generation of gardeners could tell me little about estate horticulture of the past so I sought out the previous generation, men who had worked on the estates before 1950. The few retired gardeners I was able to speak with could not recall detailed information about traditional plants or practices. They had repeated the daily tasks of the greenhouse for so many years that their jobs had become instinctive. One 90-year-old gentleman who had worked in the greenhouse for most of his life, unfortunately refused to be interviewed because he felt the effort to recount his experiences would be too stressful. My greatest sources of information were Joseph Talley, greenhouse gardener at Hill Girt Farm since 1934, and Ken Murray, greenhouse keeper at Mt. Cuba since 1967. With their assistance, an image of the estate greenhouse tradition emerged.

The show house at Granogue arrived at its hilltop site by mule team in 1925 when three greenhouses from the du Pont property in Wilmington were moved to Irénée du Pont's new estate.

From 1900 to 1930, in the countryside north of Wilmington, Delaware, the thriving industrialists of the Du Pont Company built their great estates with landscaped grounds, formal gardens, model dairy farms, tennis courts, swimming pools, and conservatories modeled after "country places" of the English gentry popularized in such magazines as *Country Life* and *Country Life in America*. It was most desirable to fill one's home with fresh flowers at all times of year, and thus, the estate greenhouse appeared to satisfy this need.

The epitome of gardening under glass was Longwood, the estate of Pierre Samuel du Pont. Longwood maintained the largest conservatories and set the standards for the other Brandywine estates. Pierre's cousin, Henry Francis du Pont, owned Winterthur which followed close to Longwood in horticultural display, but there the emphasis fell on the gardens rather than the conservatory. Gilbraltar (owned by H. Rodney Sharp), Elton (Chichester du Pont), Still



photo by Valencia Libby

Granogue vestibule entrance

Pond (W. K. du Pont), Applecross (Donald P. Ross), Granogue (Irénée du Pont), Hill Girt Farm (H. G. Haskell), and Dilwyn (R. R. M. Carpenter) all had gardens and greenhouses no less lovely for their smaller scale.

The estate owners were avid horticulturists who delighted in collecting, cultivating and displaying a wide range of ornamental plants. They competed at this new avocation with zeal, building ranges of greenhouses, storage pits and frames. They visited one another's gardens offering both criticism and praise. And they exchanged horticultural advice and new plant varieties. As they strove to outdo each other in producing the grandest, the loveliest, the earliest, or the most unusual of flowers, they fostered an outstanding excellence in horticuture.

the gardeners

Upon the greenhouse gardeners fell the responsibility for maintaining this excellence. "We did a little of everything, and we were expected to do it better than anyone else," stated Ernest Tyson, superintendent of Meown Farm, another of the Sharp family estates. The greenhouse gardener was often a man like Joe Talley who had spent most of his working life at Hill Girt Farm. As a young man in the 1920's he had been hired to do chores in the dairy barn and vegetable garden. When an extra hand was needed in the greenhouses, he was called in. He showed an ability for plant work and was soon promoted. Each novice gardener was expected to acquire the necessary skills through personal observation and repeated trial and error. After many years' experience, a gardener developed a "feel" for growing plants under glass. It is no wonder that estate gardeners, particularly in the greenhouse, were known for their reluctance to share information with new employees. It was an unspoken guild system of men who prided themselves on the appearance of their greenhouses and the quality of their plants. The estate owners encouraged their staff to excell by acknowledging work well done and by sending them on tours of the other estates. Professional friendships slowly developed, with the accompanying exchange of plants and advice. From this informal network evolved the Del-Penn Gardeners' Association, chartered in 1959. The group still meets each third Thursday of the month at Buckley's Tavern, Centerville, Delaware.

greenhouse styles and designs

Three major greenhouse manufacturers served the Brandywine region: Lord and Burnham, Hitchings and Company, and the Pierson U-Bar Company. Lord and Burnham, the largest manufacturer of greenhouses in America, marketed a mail-order line called "Glass Gardens" with catalogs full of carefully phrased appeals: "A new beginning to your busy day"; "Your tired nerves are soothed"; "The surest prevention that you'll never run short of flowers for entertaining again!"

Lord and Burnham designs were distinguished by a structural simplicity that changed little over the years. Their style was based on a gothic-arched or gable-peaked house with foundation walls of brick or stone, steel framing, and glass covering. Door frames and sashbars were "the finest of cypress." An elegant finishing touch was the hooded gable of glass over the greenhouse entrance. Lord and Burnham packaged a range of models to ship directly to the customer complete with construction plans, building materials, heating pipes, and potting bench. Their crew would come to install it, or they would furnish instructions for the "local mechanics to erect it." They encouraged their clients to buy the size of house they could comfortably maintain claiming, "We're not trying to see

continued



From: *Some Greenhouses We Have Built in the United States and Canada* 10th ed. Lord & Burnham Co. circa 1920

An example of a tropical house.

The Life and Death of the Estate Greenhouses

continued

how big a greenhouse we can sell you, but how much joy."

The estate greenhouse, like the dairy barn, was a feature intended to impress. Lord and Burnham managed to enhance even the production house in many ways. The entrance could be accented with a glass gable or graced with classical columns, fanlights, and side panels to form a vestibule. The potting shed could be stylishly designed to harmonize with the main residence in colonial clapboard or medieval stone. If a man's home is his castle, then his greenhouse can be one, too, or so H. G. Haskell seemed to believe when he built the range at Hill Girt Farm. Through an entryway guarded by two imposing stone posts, one entered the service yard at the center of the U-shaped greenhouse range. A potting shed of massive rough-cut stone sported a tower, the furnace chimney in romantic disguise.

"So They Made Springtime Perpetual ..." along the Brandywine with Lord and Burnham "Show Houses" or free-standing conservatories. The show house had a hipped-back gable to increase its height and breadth for the display of large, specimen plants. Their form was often lozenge shaped rather than rectangular. Decorative panels replaced simple glass panes, and paths were laid in brick instead of concrete. The first greenhouse built at Elton for Mrs. Chichester du Pont was a show house. Visitors could stroll around the "Palm House," as it was called by the owners, admiring the fountain playing amidst ferns and flowering plants.

Hill Girt Farm had an even larger show house constructed on two levels. One entered it onto a balcony and descended to the main floor where a narrow ornamental pool of blue and green tile caught the spray from a fountain. Haskell had the house fitted with spotlights and filled with flowering plants year-round. At one end of the show house was an area just large enough to allow eight persons to dine there, which they often did. Visitors came here after touring the garden and greenhouses to be served coffee from a concealed urn. Soon the greenhouses at Hill Girt Farm were proudly nicknamed "Little Longwood."

Mrs. R. R. M. Carpenter, Pierre S. du Pont's younger sister, had an elegant show house at Dilwyn in which to display her prized camellia collection. It, too, was set on a sloping hillside so that visitors could enter onto a balcony overlooking an aisle of dark, glossy green trees reflected in the long central pool. Through the glass walls one viewed a Brandywine landscape of woods and fields much in contrast with the semi-tropical interior. For its sheer size and simplicity it was beautiful, and filled with the greenery and rosy bloom of camellias it must have been heaven.

The show house at Granogue arrived at its hilltop site by mule team in 1925 when three greenhouses from the du Pont property in Wilmington were moved to Irénée du Pont's new estate. The large display house was flanked to either side by a production house in an arrangement Lord and Burnham nicknamed the "Honeymoon House." The Honeymoon House received its name from an advertisement in *Country Life in America* where a handsome man claims that it saved his marriage by pleasing his young Floridian bride during her first winter in the North.

The original estate greenhouses differed in several aspects from contemporary structures. The heat was provided by hot water systems fired by coal-burning boilers located beneath the range. Iron pipes fed the hot water through the houses under the permanent benches. The bottoms of the benches were made of clay tiles or less frequently of wood. The growers believed it was more important to keep the plant's root zone warm than to heat the air above it. Propagation beds for rooting cuttings (made by filling a bench with damp sand in which the cuttings were stuck) took advantage of the bottom heat. This form of heating system proved beneficial in other ways as well. The Orchid House at Hill Girt Farm had shelves fitted beneath the benches in which a layer of rough coke was placed.



Old-fashioned favorites, ranunculus crop from Mt. Cuba near Winterthur in Delaware.



Section of Dilwyn Greenhouses: the balcony entrance looks onto a long central pool.

photos by Valencia Libby

The gardener kept this moistened, and heat rising through the coke created water vapor to humidify the air. Frames built along an outer greenhouse wall could easily be warmed by a pipe run through them from the greenhouse. Fuel costs were not prohibitive and heat was generously supplied to the houses. If a gardener could not accurately control the temperature in two adjacent houses run at different levels, he simply set the thermostat for the warmer house and opened up the ridge vents to cool down the other.

The buildup of excessive heat in the greenhouse during the summer was a serious problem for the grower. Regardless of the season, he was expected to supply the main house with a wealth of fresh flowers. The quality of many cut flower crops, however, diminished as the temperature increased. By mid-May the grower turned to the outside cutting garden and his frames while he attempted to clear the greenhouse out. Where plants, from convenience or necessity, could not be removed, wooden lath shades and whitewash were used to cover the houses. At Hill Girt Farm the Orchid House was ingeniously cooled by the evaporation of a stream of water kept running across the roof. This method could only lower the inside temperature about 10° below the outside, but it did provide a psychological sense of coolness.

greenhouse crops

Most of the estate greenhouses grew similar crops, the owners' preferences and the growers' prejudices determining the exact cultivars. It was the greenhouse manager's job to orchestrate production to include not only continuous cut flowers, but potted foliage and flowering plants, bulbs, bedding plants, holiday plants, and often vegetable seedlings. Poinsettia cuttings taken in late August must be showy display plants by Christmas. The grower timed some to be ready both before and after the date just to be sure he did not miss the holiday. He kept a wary eye on weather fluctuations from year to year observing how it affected the production of each crop.

Bulbs, the single largest greenhouse crop, ordered by the thousands, were potted up by the gardeners in wooden flats or clay pans from September to November. Bulbs such as tulips, hyacinths, narcissus, muscari, crocus, and Dutch iris requiring a cold treatment were buried in shallow pits or frames and covered with a layer of sand and salt hay. By late November the gardener was bringing the first bulbs into the greenhouse and within about four weeks he was cutting flowers. Anemone and freesia were potted up and placed beneath the benches until new growth appeared an inch or two above the soil. The pots were then brought up onto the benches and grown on till flowering. Caladiums and tuberous begonias were

continued

Estate Greenhouses

continued



From: *Some Greenhouses We Have Built in the United States and Canada*. 10th ed. Lord & Burnham Co. circa 1920

Another example of a balcony entrance to a greenhouse.

forced in the same way during February to be ready for the summer garden. Freesia, alstroemeria, and ranunculus were used for the conservatory display from December to April along with potted varieties of streptocarpus, pansy, astilbe, cyclamen, campanula, calceolaria, primula, and cymbidium orchids. More unusual bulbs such as crinum, ismene, nerine, *Ornithogalum arabicum*, and *Leucocoryne ixioides* were also used as ornamentals. A few of the estates grew roses under glass, a very demanding crop.

Special collections often developed in the estate greenhouse as a result of the popularity of one plant as a cut flower. The big, showy flowers of cattleya orchids, for example, were popular in the early part of the century to decorate both parlors and women's evening clothes. Orchid collections grew at Mt. Cuba, Granogue, and Still Pond to include species as well as cultivars. Mrs. W. K. du Pont had the finest collection of orchids in the region. The graceful wands of white and purple blossom from calanthe orchids were frequently seen in floral arrangements of the 1920s. Calanthes and cymbidiums were excellent cut flowers to grow in a cool greenhouse and large collections of their cultivars grew in the estate greenhouses.

For each of the many greenhouse crops, the gardener had a special potting medium and kept the recipe in his head. He used composted sod and manure, peat, loam, sand, leaf mold collected from the forest floor, and a little dried blood, bonemeal and lime. The medium was mixed by hand in small batches. Few artificial fertilizers were used. Instead, the gardeners concocted "manure tea" in various ways. In the workyard at Hill Girt Farm stood a five-foot-high stone tank with two steel trapdoors in the top. Barnyard manure was shoveled into this, topped up with water, and left to brew. In a few days the gardener returned and tapped off the "tea" from a spigot in the lower end. Manure tea was used to feed almost everything in the greenhouse. Plants grew well, and according to Joe Talley, few pesticides or fungicides were needed.

The estate grower relied on seed or cuttings from stock plants to propagate many of the standard crops grown each year. Cyclamen seed, for instance, was collected from the Christmas display plants. Stock plants of chrysanthemums and the gray-foliaged garden plants such as santolina, artemesia, and lavender were kept in the greenhouse over winter as a source of cuttings for the following summer's display. The large, old fingerbowl geraniums tucked in greenhouse corners at Mt. Cuba and Elton were stock plants as well as the source of the fragrant leaf floating in each fingerbowl on the Copelands' and the du Ponts' dinner tables. The system was to a large extent self-perpetuating and maintained many of the old favorites over the years.

An important support facility for the greenhouse was the half-pit or storage pit located in a south or west facing slope. At Hill Girt Farm, Granogue and other estates it provided winter protection for the large, tubbed specimens of tender plants like gardenias, lantana standards, topiaried myrtle, and citrus trees used to decorate the terraces in summer. Big pots of dormant agapanthus and crinum bulbs were stored there as well as half-hardy azaleas, camellias, and jasmine trellises.

where horticulture has become archeology

Looking at the estate greenhouses of the Brandywine today, one feels like an archeologist. Of the castlelike range of nine houses at Hill Girt Farm only two remain intact. The rest have been stripped down to their rusted steel ribs over the last 10 years. The elegant show house with its spotlights, fountain, and dinner parties amidst the flowers is a concrete shell full of glass shards. The "Honeymoon House" at Granogue sits swaddled in double poly, its heat pipes cut in the fall of 1981. Carpenter's magnificent camellia house awaits a new and caring owner to save it from the bulldozer.

Each novice gardener was expected to acquire the necessary skills through personal observation and repeated trial and error. After many years' experience, a gardener developed a "feel" for growing plants under glass. It is no wonder that estate gardeners, particularly in the greenhouse, were known for their reluctance to share information with new employees. It was an unspoken guild system of men who prided themselves on the appearance of their greenhouses and the quality of their plants.

Although so many of the "glass gardens" are already destroyed or abandoned, some Brandywine estates still carry on the tradition. At Applecross, Mrs. Donald P. Ross maintains a fascinating collection of plants in greenhouses that were once her mother's. Mrs. W. K. du Pont was a notable horticulturist much respected for her work in hybridizing african violets, large flowered pansies, and a single, white, upright petunia. Mrs. du Pont built her first greenhouse above the garage at Still Pond in Wilmington and there began her famous orchid collection. Much to her daughter's disappointment, not one plant of her mother's collection exists in the greenhouses at Applecross today.

Mt. Cuba, the estate of Mrs. Lammot du Pont Copeland, is the remaining example par excellence of the estate

tradition. Mt. Cuba maintains eight greenhouses with a fulltime staff of four horticulturists. As Ken Murray says, "We're old-fashioned greenhouse growers." They strive to produce the finest quality ornamental plants possible. Each year their immaculate houses hold up to 18,000 bulbs, 5,000 chrysanthemums, 800 geraniums, and numerous other display crops as well as a prize winning orchid collection of 1,200 plants. Needless to say, the floricultural display at Mt. Cuba is stunning.

The greenhouse structures may be disappearing, but the plants from the estate collections have managed to change hands over the years and survive. The gardenia standards that once lined the terrace at Gilbraltar now reside at Meown Farm under Ernest Tyson's expert care. A lovely pink form of geranium named "Winterthur" and the calanthe varieties from Henry Francis du Pont's estate are growing at Mt. Cuba. Mrs. W. K. du Pont's orchid collection has been absorbed into Longwood's, and the exchange goes on.

At present, all the estate greenhouse managers are working against the same operational problems. The need to conserve energy and cut heating costs has them putting up insulation and experimenting with cool crops such as alstroemeria, crinum, freesia, and calanthe. To save time the staff at Mt. Cuba now purchases rooted cuttings of chrysanthemum and poinsettia instead of taking their own. All their crops are grown in pots rather than in the benches so that areas can be changed over or crops consolidated to improve greenhouse efficiency. Houses may be run at several different temperature regimes during the year to maximize their use. The superior quality of seed and bulbs required by the estates to insure crop performance is increasingly difficult to find. Commercial nurseries no longer offer many of the old-fashioned favorites. Ken Murray is constantly hunting for the tall, graceful Easter lily cultivars once seen at Mt. Cuba. Greenhouses that have preserved the unusual estate plants now have the task of propagating and distributing them to others. The "Winterthur" geranium, for example, was returned to Winterthur Museum and Gardens last spring.



photo by Valencia Libby

An abandoned Brandywine glasshouse from a former estate.

The greenhouse range at Mt. Cuba is relatively young, constructed in the 1950s, and maintained in excellent condition. Yet, Mt. Cuba, as well as all the other estate greenhouses now operating, face at best an uncertain future. Their unique form of horticulture and their valuable plant collections may soon be lost forever. If they do not become public gardens like Longwood and Winterthur, who will be willing to maintain them?

Greenhouse Locations

Gibraltar. House and property purchased in 1908 by H. Rodney Sharp, a keen horticulturist. Gardens designed by Marian C. Coffin. Date greenhouses were built is not known. Gibraltar is located just outside of Wilmington, DE.; today it's within city limits.

Dilwyn's greenhouses are near Hagley Museum, Greenville, DE.

Granogue is still a self-contained estate with working farm. It was built early in 1900 for Irénée du Pont and borders the Brandywine River.

Hill Girt Farm is close to the Brandwyine River. Joe Talley, their retired greenhouse manager, still maintains a vegetable garden there and propagates a few plants in the greenhouse.

Mt. Cuba is near Winterthur, DE. Lammot du Pont Copeland was president of Dupont Corp. in the 1960s; he died July 4, 1983.

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Valencia Libby is a horticulturist/garden historian. She graduated from Cornell University with a B.S. in Landscape Design in 1977. She interned at the Royal Botanic Garden, Edinburgh, Scotland. Libby is a recent graduate of the Longwood Program in botanic garden management at the University of Delaware and is currently writing her Master's thesis on "The Education of Winterthur's Head Gardener, Henry Francis du Pont." When not writing and lecturing, she studies historic garden restorations in Europe and America.

CLOSE ENCOUNTERS WITH SPIDER MITES

by Emily Kneebone



photo by Anneke Davis

Spider mites are 1/50th of an inch in length, so tiny that they are invisible unless they are present in large numbers.

Thus my gardenia plant sent out several distress signals before the spider mites on it became so populous that I couldn't miss its message.

First, the wonderful assortment of flower buds that covered the plant when I bought it fell off, one by one. Spider mites are one of a few reasons that buds fall off because these mites do start their damage on the youngest and lushest growth points on a plant. I should have at least considered mites, but instead I watered more and fertilized with a high phosphate rather than a high nitrogen fertilizer. (Phosphate encourages flowering.)

Second, the plant had a rather tired and discouraged look as if it wanted to drink water and wilt at the same time. It did not respond to the fertilizer and did not show any improvement with increased watering. Still I didn't think of mites.

The third sign of mites is leaves that are both dusty and gritty. Indoor plants do get dusty and need to be washed periodically, but if it is a gritty dust, it is time to hunt actively for the fourth, and unmistakeable, distress signal, and that is speckled leaves. The speckling is all over the leaf on the upper surface, and it occurs because the mites feed on the leaf's epidermis, which under a magnifying glass appears to have scraped areas that are paler in color than the still-healthy tissue between the areas. Speckling can also be observed on the younger leaves, but since they are paler in color than older leaves, it is not as obvious.

By the time my gardenia's leaves had become visibly speckled so that I knew that its problem was spider mites, it was easy to see the webs in the axils of the leaves. (The angle between leaf stem and plant stem is the axil.) The webs are short at first, just draped across the base of the axil, but they can be seen by holding the plant up and looking at it with the light coming in from behind it.

At this point I could see that the few remaining flower buds were covered with webs, and could see a few mites as they moved around on the filaments. I had to marvel at that tiny world for a few days, though, before declaring war on the little critters.

Within a few days the spider mites had thrown webs a full two inches in length across the chasms of space between the leaves of the gardenia. The colony became highly visible in ordinary light, streaming to and fro and building new exits and entrances to their expressways, getting livelier and more industrious by the minute, all unconscious that a being was ready to destroy them, their bridges, their dwellings and any other constructions they had devised.

By that time my poor gardenia plant was frantically signaling me to rouse myself and do something. Finally, I listened. Before bringing my ten 30-mite-wide weapons into the scene, however, I enlisted a friend to come and take pictures of the seething masses. As soon as she left, I prepared for the flood.

Spider mites are well-named since they are miniature members of the spider family. Spiders differ from insects in having eight legs instead of six (and of course in other ways). Therefore, although some insecticides will kill mites, it is better to use a miticide, especially outdoors where the insecticide could kill mite predators. If that's the case, the mites left after spraying with insecticide will increase faster than ever. Kelthane or nicotine sulfate are effective miticides.

I prefer to use water rather than chemicals in the house because mites have one characteristic that makes them quite vulnerable to this simplest of biological contols: their footing is precarious. They are easily jarred loose by the mildest streams of water, or even by air currents started up by shaking the branch that the mites are on.

That is why you can take a white piece of paper, hold it under a branch, shake the branch, and if spider mites are present, enough of them will fall onto the paper to make streaks when you rub your hand across the paper.

If you find these streaks, get out the hose and put a forceful spray of water all over the infested shrubbery. Do that again once a day for a couple of days; the mites will be swept away and drowned.

The same thing holds true for potted plants like my gardenia. When I took the mite-infested plant to show to a class, the mites were all over the inside of the bag by the time I got there. They might have been shaken loose by the vibration of the car, but more likely my first movements toward the bag set the plant vibrating and sent the mites plummeting.

And so when I finally reacted to all the distress signals the gardenia had been broadcasting, I used water, not plain water but water (about a glassful) to which a drop of liquid detergent had been added. The detergent serves to cut the surface tension of the water and make it easier to remove webs, dust, grime, and mites from the surfaces of the plant without harming the natural protective coating on the leaves. I took an artist's water-color brush and brushed the solution all over the plant until it was completely wet. Then I turned the plant sideways in the sink and ran tepid water over it to rinse it. I repeated the treatment the next day and again the day after that. (This is one of the disadvantages of biological control – the treatment must be repeated frequently at first, sometimes more than once a day.)

I'm happy to say that three days' treatment did the trick for the mites on this gardenia, although I keep a close watch on it even yet, a year later. I trimmed off all the speckled leaves I could without entirely denuding the plant. I was rewarded with handsome new leaves, new flower buds that opened normally, and normal gardenia reactions to the little necessities of potted plant life like water and fertilizer.

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Emily Kneebone is budget chair of the Oak Ridge Nature Center Council, and chair of the herbarium at Cylburn Arboretum in Baltimore, MD. She is a wildflower, shrub and tree enthusiast, with an interest in botany.

Gifts to Give Your Gardening Friends



by Anne S. Cunningham

Whether your gardening friend is an eager beginner or a veteran hortiholic there is an almost endless array of appropriate holiday gifts from which to choose. Something small, like a magnifying glass for identifying bugs could be just as useful as something large, like a tractor with attachments.

The most welcome gift is a new plant, which if it is carefully chosen increases the recipient's knowledge. Rather than bringing "coals to Newcastle," look for a new variety, a rare color, something special your friend has admired. Many horticulturists prefer plants that are shared between friends to those that are picked up at a store. Choose a special plant from your own collection, take cuttings, divisions, or plant seeds, and when they're fully rooted, give them to admirers along with any important cultural instructions. (The instructions are not to insult his or her intelligence, but to pass on any clever growing tips you might have that give you particular success with this plant.) Fragrant jasmine, oleander, hibiscus, and clivia are always popular at this cold time of year.

Bulbs for winter forcing bring delight to children and adults, beginners and experts. Amaryllis, paper white narcissus, hyacinths, and others can be bought individually, started about a month before you plan to present them, then given to someone just as they approach their full glory. Or they can be purchased and proffered in their elemental state, giving the recipient the fun and challenge of watching something splendid grow from nothing. Good garden centers and the plant and seed suppliers mentioned at the end of this article have bulbs available singly, in packages, and in gift containers ranging from simple plastic bowls to Delft china.

Bonsai, topiary, miniature plants, hardy varieties of something not usually hardy to this area (like fuchsia) are good gifts for the knowledgeable gardener. These can be found at major garden centers and specialty nurseries.

A succulent, cactus, terrarium, or dish garden would be an appropriate gift for the beginning gardener. All four items require minimal care, can withstand abuse, and can be grown under most household conditions.

When spring finally comes, gardeners can always use a new pair of good gardening gloves; washable are best.

continued



Gloves come in many varieties including those with long cuffs to keep the dirt out (available through Miles Kimball). Some gardeners prefer packages of inexpensive plastic gloves, like those worn by doctors, which are easily disposable yet allow the gardener to pinch buds and plant fine seeds. A long-lasting and more expensive glove, about $10 to $15, is made of pigskin or goatskin, especially popular in cold weather because natural oils in the skin help prevent chapping (available at Waterloo Gardens, Gardener's Eden or Burpee). Knee pads for those who spend hours working on flower beds are a practical and welcome gift, and can be found in good garden centers and catalogs. Gardening shoes can be little more than pull-on mini-boots ($6.00 at Gardener's Eden) or they can be cotton-lined English rubber garden shoes ($20 at The Horse).

tools

Tools, from clippers and pruners to trowels and rakes, are frequently worn down or mislaid in a flurry of gardening, so new ones are always welcome. Wilkinson Sword makes high quality, durable, sharp garden tools. The 60-year-old company is famous among old time gardeners, but the U.S. advertising hiatus in the 1950s and 60s left more recent converts unfamiliar with their line of two dozen gardening tools, including clippers, trowels, rakes, edgers and the Swoe, a lightweight, long-handled, stainless steel, triangular hoe with three razor-sharp edges. Wilkinson Tools can now be found in an ever-increasing number of good catalogs (Horchow, White Flower Farms, N.Y. Botanical Gardens, Gardener's Eden) as well as in some garden centers and occasional hardware stores throughout the country. Another popular tool collection is made by Smith and Hawkins. Burpee makes a group of seven tool heads (two rakes, cultivator, crumbler, seeder, grubber, and weeder) that fit interchangeably onto one long-reaching Snap-lock handle.

The American Standard Company makes a useful line of rachet clippers, lopers, etc., for woody plants and other ornery things that need pruning. On the more delicate end of the tool line are the ever-popular small pocket pruners from England (available at some garden centers, and The Horse), tiny pointed scissors for delicate trimming (available through Hoffritz or Brookstone), and the invaluable long-handled, narrow bladed scissors needed for trimming inside bushy plants or for reaching inside topiary (available through Brookstone with straight blades, Cheaps and Sons with surgical curved blades).

The thought of a new clean pot, particularly one that is handmade by a local craftsman or an unusual clay pot from Italy, breaks down the willpower of even the most dedicated recycler.

books and publications

Books on gardening can range from inexpensive Sunset paperbacks on gardens to the Bibles of horticulture: *Exotica* and *Hortus III*. There is a specialty book available in almost any field of expertise, either in single volumes or in sets such as the very good Time-Life series. Books on herbs, fruits, vegetables, preserving and canning, appeal to those whose interests lie equally in the garden and kitchen. Pots of herbs brighten anyone's kitchen windowsill. Garden centers, horticulture institutions and the major arboretums have gardening books to appeal to almost anyone. (For a listing of bookstores with gardening sections, see Mary Lou Wolfe's recommendations on page 20.)

Books given in conjunction with another gift are thoughtful and exciting for the recipient such as a book on herbs given with several pots of herbs, or a book on attracting birds with plantings given with a bird feeder or bird house. Books on bonsai, flower drying and flower pressing, topiary, gardening under lights, hydroponic gardening, canning and preserving garden harvests, bulbs and seeds, all suggest other gifts that could be given at the same time. Gardener's Eden has hydroponic gardening equipment; Burpee has a good line of dehydrating, canning and preserving aids. In addition to books, gardeners might appreciate calendars with pictures of flowers, writing paper and note cards with flowers on them, even postcards, all of which can be found in the gift shops of The Pennsylvania Horticultural Society, Longwood Gardens, or any of the major arboretums. Several fund-raising groups as well as bookstores with gardening sections sell Gardeners' Diaries, to help the enthusiast keep track of successes and failures, diagram perennial beds, record seed plant sources along with their success rate, etc. No one who takes gardening seriously can succeed without such a diary, and many gardeners like to have two or three, to keep track of indoor plants, outdoor flower gardens, vegetable gardens, greenhouse, cold frame, and any other areas they care about. In the same vein, subscriptions to good horticultural magazines are always appreciated: *The Green Scene, Garden Design, Horti-*





culture, Organic Gardening and the *Avant Gardener* (a newsletter) are all highly informative.

gadgets

There are always the inevitable gadget lovers, whether they are the gift-givers or the recipients, and their possibilities are endless. Garden centers carry water meters, light meters, humidity meters, pH meters, rain gauges, fertilizer analyzers, and on and on. Watering hoses that drip and others like Ansan's Water Minder with an automatic timer makes summer chores easier. Watering cans are always useful, whether they are the heavy duty English Haws variety with extra-long neck and swivel head, or delicate hand-decorated house watering cans (available at Gardener's Eden, and most good garden centers). Misters and sprayers would come in the same category. On a larger scale, hoses with reels, backpack pesticide spray carriers, and electric trimmers appeal to some. Accessories like hose shut-off valves (the good ones are made of brass) and garden spigot ornaments in animal shapes are currently popular. These items can be found in top quality hardware stores as well as in the well-supplied nurseries and garden centers.

pots

No gardener ever has enough pots, no matter how many are neatly stacked under a bench. The thought of a new clean pot, particularly one that is handmade by a local craftsman or an unusual clay pot from Italy, breaks down the willpower of even the most dedicated recycler. Many garden centers carry a variety of decorative pots, ranging from plastic to ceramic. Meadowbrook Farms has perhaps the best selection of fine pots and exotic containers. They also have beautiful cache pots, statuary, and more. Stone, lead, or clay-finished-to-look-like lead are currently popular among those who like garden statuary. Fountains, sundials, birdbaths, birdfeeders, birdhouses, and other decorative garden ornaments can be found at the more complete garden centers. Perhaps the most unusual collections of decorative garden ornaments made by artisan craftsmen from Pennsylvania and around the world are available in limited quantities at Garden Accents of J. Franklin Styer Nurseries, Meadowbrook Farms, and Weldon Nursery.

All respondents, no matter how much they enjoy gardening, said they could use help. One bright person suggested a gift certificate for work, a day or half a day in a friend's garden.

gifts serious gardeners have been giving

We were curious to know what serious gardeners give one another during the holidays, so we sent out a questionnaire to a few readers to see what they would recommend. The responses were original, inspiring, and above all clever.

One husband/sailor tells of making his wife a belt holster to hold her garden tools much as a carpenter carries tools, but he uses mildew-proof sail canvas and sews it with nylon line. A similar leather holster can be found in the Sears's catalog, #9 HT 4544 or #9 HT 37217. Wilbur Zimmerman kindly shares his sources for two of the most sought-after items: good plant ties that last (Tie-Ups) and durable plant labels (Hartley's). Several readers like to give aprons or baskets they decorate themselves with paint or ribbons. They prefer baskets with wide flat bases for setting down on the ground when working in the garden.

All the respondents, with gardens two feet by ten feet or two square acres, say they would like to have a knowledgeable gardener. No matter how much they enjoy gardening, they feel they could use help, which one bright person suggests could come in the form of a gift certificate for work. Children, teens, or adults could give certificates for a day's work, or half-day in a friend's garden. City gardeners ask for manure, good compost (no weed or seed) and a load of wood chips (no brush or disease) from their country counterparts. Manure connoisseurs prefer "zoo doo" from the Bronx Zoo. Known as "exotic manure" from several unusual animals, it is guaranteed to repel deer and other varmints from your garden. (Not available from the Philadelphia Zoo.) Gardeners who think big want a greenhouse or a Pella greenhouse window addition, a roto-tilling attachment for the back of a tractor (which would go much deeper than a hand roto-tiller), or a rare yellow clivia.

The true Santa Claus of all questionnaire respondents is Susie Ganoe of Princeton, NJ. She envisions elaborate gifts appropriate for the interests of the recipient. The flower arranging enthusiast would receive a tool box filled with clippers, pointed scissors, tweezers, oasis and different size pin holders, florist tape, green and brown wrapping tape, Stickum, tubes, different size paint brushes for cleaning petals and leaves, a ruler, masking tape, and a variety of small vases and unusual plant stands available at oriental stores.

The horticulture expert would get a

continued

basket filled with rolls of green string (skinny and fat), Wilkinson clippers, two types of pointed scissors (large and tiny for fine trimming), a mister, different size plant stakes, a container of good multi-purpose fertilizer (or sampling of different specific fertilizers, like African Violet Special fertilizer for the african violet lover), red fluorescent tape for marking the handles of tools that disappear when put down in a garden bed, plant labels of different sizes with an indelible pen, bulbs and seeds.

Some flower lovers want just a "bunch of cut flowers in the dead of winter" to arrange themselves while dreaming of spring. Others want a flower arrangement in a special container. For longer lasting gifts, flower arrangements in dried material, silk, or poly-silk are admired for months, possibly years.

The more whimsical gifts for this magical time of year are ladybug eggs and praying mantis cases (available only in Burpee's spring catalog) and homemade special scarecrows for your favorite vegetable garden. If your gardening friend works too hard, perhaps a hammock is the best thing for the garden.

It's easy to find an appropriate gift for any level of gardener, whether it be a practical tractor or lawn spreader, a decorative plant stand, or something just for pleasure like a beautiful plant.

Sources for Gardeners' Gifts

PLEASE NOTE: The sources listed below and in the article are meant to provide the reader with some suggested sources. This is not meant to be a complete list of all the fine nurseries and garden centers in the Delaware Valley and what they stock.

American Standard Co.
Ratchet Cut Pruning Tools
c/o Nathaniel Florian
1 West Street, P.O. Box 325
Plantsville, CT 06479
Also available in the trade booth section of the Phildelphia Flower Show

Avant Gardener
P.O. Box 489
New York, NY 10028
Subscription $15 per year
No phone

Bronx Zoo
Bronx, NY 10460

Brookstone
The Court at King of Prussia
Phone (215) 337-0774
Catalog also available by calling or writing:
702 Vose Farm Rd., Peterborough, NH 03458.
(603) 924-9511

W. Atlee Burpee Co.
300 Park Avenue
Warminster, PA 18974
Phone (215) 674-4900

J. Cheaps & Sons
Cheaps Pond Park, Box 7199
Warrensville, OH 44128
Phone 1-800-821-4142

Garden Design Magazine
1190 East Broadway
Louisville, KY 40204

Gardener's Eden
P.O. Box 7307
San Francisco, CA 94120-7307
Phone (415) 428-9292

Hartley's
Clear Span Ltd.
Greenfield Near Oldham
Lancashire, England

Hoffritz
The Court at King of Prussia
Phone (215) 265-7356
Willow Grove Park & Abington
Catalog phone orders (212) 243-6140

The Horchow Collection
P.O. Box 340257
Dallas, TX 75234
Phone 1-800-527-0303

The Horse
5716 Kennett Pike
Centreville, DE 19807
Phone (302) 656-2096

Horticulture Magazine
Subscription address:
P.O. Box 2592
Boulder, CO 80321
($18 per year)

Longwood Gardens
Kennett Square, PA 19348
Phone (215) 388-6741

Meadowbrook Farms
Meadowbrook, PA
Phone (215) 887-5900

Miles Kimball
41 W. Eighth Avenue
Oshkosh, WI 54906

New York Botanical Garden
Bronx, NY 10458
Phone (212) 220-8700

Organic Gardening Magazine
Emmaus, PA 18099
Phone (215) 967-5171

Primex Garden Center
435 Glenside Avenue
Glenside, PA 19038
Phone (215) 887-7500

Smith & Hawkins Tools
68 Homer Road
Palo Alto, CA 94301

J. Franklin Styer Nurseries
Rt. 1
Concordville, PA 19331
Phone (215) 459-2400

Tie-Ups
286 Aquetong Road
New Hope, PA 18938
Phone (215) 862-2124

Wayside Gardens Co.
Hodges, SC 29695
Phone (803) 374-3387

Waterloo Grdens
Devon Blvd. & Lancaster Avenue
Devon, PA 19333
Phone (215) 293-0800
200 N. Whitford Road
Exton, PA
Phone (215) 363-0800

Weldon Nursery
Landover & Coopertown Rds.
Bryn Mawr, PA 19010
Phone (215) 525-2745
Open Mon.-Sat. 9 am-noon only

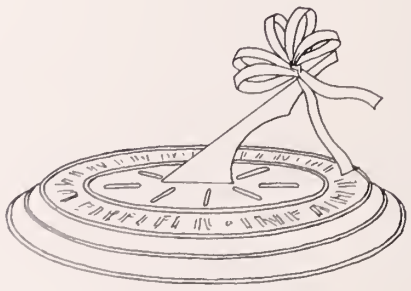
White Flower Farm
Litchfield, CT 06759
Phone (800) 243-2853

Wilkinson Tools
Available at many garden centers and some hardware stores.

NOTE: Not all of the above-mentioned companies are equipped to take telephone charges.

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Anne Cunningham is a free lance writer who specializes in horticultural subjects.





Christmas Comes Naturally to the Brandywine

by John Sheppard



photo by Peter Ralston

Naturally decorated trees greet holiday visitors as they first enter the Brandywine River Museum.

"The only gift," Emerson once said, "is a portion of thyself." And so it is that natural, handmade decorations have continued to be such a treasured tradition of the Christmas season at the Brandywine River Museum in Chadds Ford, Pa. It has been 10 years since the Museum volunteers first began to decorate the building with their now famous and strikingly original seasonal creations for trees and other holiday settings.

In the spirit of the season and of the Brandywine Conservancy, an environmental nonprofit organization of which the Museum is a part, the volunteers looked to nature in the Brandywine Valley for inspiration. They have found an infinite variety of species in the woods and fields and were able to turn their natural beauty into decorative animal-like sculptures they call "critters."

Two volunteers, Libby Dean and Anne Scarlett, have worked on the natural material decorations ever since the Museum decided to hold such a festive nature show. Their project has blossomed and grown in the years since its inception.

"There is no limit to what can be done with gifts of nature," says Dean. "Often just holding an interestingly shaped pod or cone in your hand will suggest a bird – an animal. The material used is free, boundless, and requires no electric energy. It is like magic to turn common things you pass every day into delightful creatures and charming ornaments for your tree."

A team of 50 volunteers do the decorating at the Museum now, according to Jan Feltz, special exhibit coordinator for the past four years. Throughout the

continued

Christmas Comes Naturally to the Brandywine

continued



photo supplied by Brandywine River Museum

Wreath with electric lights is hoisted in front of the old grist mill section, which forms the entrance to the Brandywine River Museum.

year, they forage along the roads and streams for the shapes, form and textures needed for the beautiful handcrafted natural ornaments. Late each fall they combine their twigs, cones, pods and seeds and let their imaginations run free to fashion fierce tigers, fanciful angels, glittering stars and hundreds of other fascinating decorations.

The volunteers' early start yields several bonuses:

The outer skin of the milkweed, when still green, can be peeled back to expose a furry white surface that is perfect for angels' wings. Hedge apples or mock oranges, so often neglected and squashed by the side of the road, make a very pretty wreath when sliced and dried in a slow oven.

Wisteria pods take on the personality of a duck; sycamore pods make good heads; a walnut hull is a natural turtle shell; oak twigs make the legs and hooves for fanciful reindeer; bright and wild bittersweet berries are colorful ornaments on a pine cone Christmas tree.

The women agree that teasel, with its long stem and prickly head, is their best friend when making natural decorations. They pick it in late August before it becomes dirty from pollution. Teasel was brought from England during the Industrial Revolution, planted near textile mills, and used to comb cotton and wool.

Teasels are valuable in ornament construction because they provide oval shaped furry-looking bodies for "critters." The cut or top end may be used as a face; the curling bracts make fine whiskers or tails.

Allium, a member of the onion family, blooms in the spring with a very large flower on each stem. when in bloom, it is covered with blue starlike flowers; when dried, it makes an enchanting flower for the top of the tree.

The culmination of all the volunteers' work comes each year on the day after Thanksgiving, when "A Brandywine Christmas for Children of All Ages" opens. Visitors by the thousands come in to marvel at the row of Christmas trees "planted" in the first floor area where they can be enjoyed from three levels. Each look reveals a new surprise in the tree boughs – an Indian paddling a canoe, a Santa with puffed "velvet" sleeves and a wispy beard, and a possum with a bright red berry nose.

Two trees are visions in white. One is covered with dried Queen Anne's lace, which rests on the branches like fallen snowflakes. The second tree is covered with goat's beard, which is a member of the salsify family. The root of the plant is often eaten in the Southern states. The flower is a larger puff of white which must be sprayed with acrylic spray in the field before it is cut.

In another first floor display is a cluster of three trees with a brownish motif. The feathery foxtail is light tan, while the goldenrod tree is gold colored mixed with beige, and the pine cone tree, tallest in the group, is dark brown. All the materials are woven and otherwise affixed to wire bases.

Visitors gape unbelievingly at a ram, almost four feet long, lying next to the trees. The sculpture was created by Connie Swensson. Her inspiration was a painting Chadds Ford artist Jamie Wyeth did of a very wooly ram on a deserted island in Maine after he saw the animal's "terrific supernatural eyes."

The base of the sculpture is an armature made of wild grapevine fashioned into a solid entanglement to hold the body together. Swensson worked on the ram at home for two days to get the initial shape. The final trimmings took a whole day and were done in the Museum courtyard. The horns are twisted grapevine; the head, grapevine root; the ears, mag-



photo by Peter Ralston

An earthly angel has milkweed pod wings and a common marsh grass (phragmites) lower gown.



photo supplied by Brandywine River Museum

A volunteer works on a cone and pod wreath.

nolia leaves, and the eyes are black-eyed Susans. The body wool is made of "burst" cattails, goldenrod and a grass with starlike tufts. Swensson was thrilled when Jamie Wyeth told her he was impressed with her creative interpretation of his painting.

Another Swensson creation is a praying angel, formed by twisting Virginia creepers into cone shapes. The figure of solid vine sets on a circle of hydrangea and yew.

Pine cone roping is now used to festoon the walls instead of green pine roping which sheds so badly. Blue hydrangea wreaths decorate walls outside the galleries and add to the holiday spirit. A wire frame is wrapped with spool wire and the dried hydrangea is stuck between the wire. Making such wreaths requires a good many hydrangeas because they shrink when they are dried.

A 12-ft. lighted wreath on the front of the red brick building puts visitors in a holiday mood and is a hint of what awaits them inside. The wreath was designed by property manager Allen Graham, who welded metal rods together to form a frame that was wrapped with chicken wire. An A-frame flat bar supports the wreath in the middle. Volunteers worked

continued



photo supplied by Brandywine River Museum

Connie Swensson created this ram inspired by a Jamie Wyeth painting. The body is goldenrod, burst cattails and grass, the horns twisted grapevine, and the ears magnolia leaves.

Christmas Comes Naturally to the Brandywine

continued

three or four days decorating the 20-in. wide perimeter with white lights and six or more different greens for variety. Graham and his grounds crew hoisted the wreath up 40 feet with a winch so it could be attached to the front of the building by a cable.

Last year a record setting 55,000 visitors came to the Brandywine Museum to see the decorated trees. Don't miss Christmas on the Brandywine this year. There will be something for every age and interest.

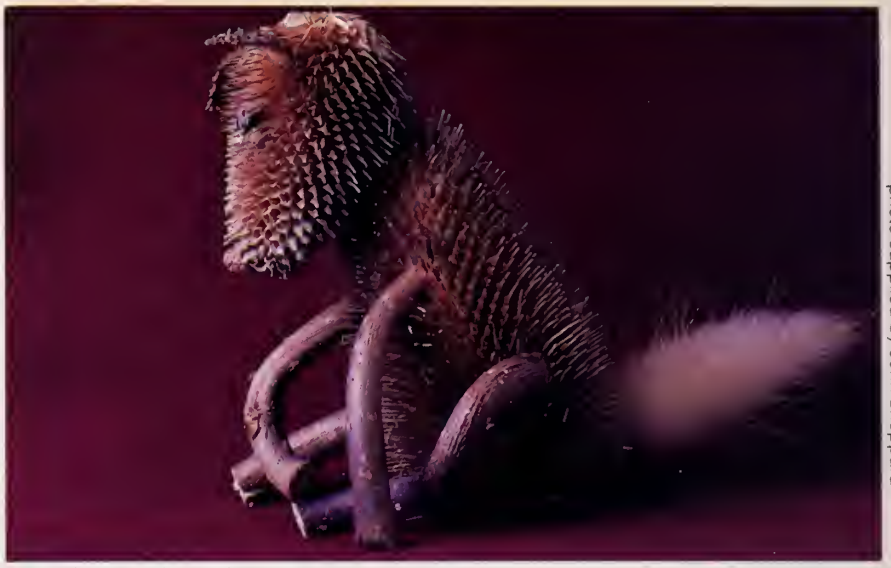


photo supplied by John Sheppard

A teasel horse with stem legs.

Making Your Own Decorations

Decorators at the Brandywine River Museum say you don't have to scour acres to find goodies. You can find makings in your own backyard: baby's breath and straw flowers grown from seed packets in spring, hydrangea florets, golden yarrow, bittersweet or dogwood or holly berries. Such places as empty lots and railroad embankments yield treasures: the milkweed pods and Queen Anne's lace flowers that are favorites of the Brandywiners and other collectors.

Even the grocery store has offerings. A dried okra pod can make an angel's skirt. Slices of potato or sweet potato, squash or turnip, cut ⅛-in. thick and dried at 150° to 200°F in an oven will turn color and dry thoroughly enough to last a year or so. Watch the oven, experts advise. Take turnips out of the oven when they are dry and a color you like. They make flower petals and other decorations to hang on a tree.

how to dry the plants

How do you dry them? Hang some in loose bunches in a cool, well-ventilated place. Bury some in silica gel from a florist. The gel comes with instructions and suggestions. Or bury them in borax of a half-and-half mixture of cornmeal and sand. For this, be sure to have an inch depth of the mixture, carefully working it down into flower centers and between petals. Then add and cover with one-half inch layer. Leave for three weeks. Remove with care.

Microwave ovens are another flower drying possibility. Place a cup of water in the back of the oven. Put the flowers in a container with a drying agent and put them in the microwave for approximately ten seconds. The longer they are left in the oven, the darker the color will become. Upon removing the flowers from the oven, be sure to let them cool completely in the container before removing them from the drying agent.

tree critters

Quite a few of the ducks, owls and rabbits stand on pine-cone "petal" feet. A duck also has a bill made of pine petals, and an owl's ears came from the same source. Acorns are angels' heads. Acorn cups, not whole acorns, make flower centers. Seeds, spray painted or plain, make decorative patterns on twigs and leaves.

Teasels, with their spiny pods, make perfect bodies for the little furry creature ornaments. To make an owl, hold the teasel upright and use trimmed pine cone petals for the ears, feet and beak, and acorns for big, owlish eyes. For a rabbit, glue a small teasel to a larger teasel for the head and body, make ears from dried leaves, feet from pine petals and a nose from a berry.

A bird can be made from an unpeeled pod for the body, and two peeled pods for the wings. Make the head from nuts or gumballs, and the tail from grasses. Wire the wings to the body and glue on the tail and wings.

With a little effort, glue and wire, you can have a whole family of critters smiling out from this year's Christmas tree.

Ornament Instruction Booklet Available

A booklet, written and illustrated by Libby Dean and Anne Scarlett, is available through the Brandywine River Museum Shop. It is full of ideas and illustrations for constructing many of these unusual and beautiful natural ornaments. Since the book was written in 1975, more than 6,000 copies have been printed. The booklet is $1.50 at the Museum, $2.25 by mail.

Christmas Calendar

The Christmas season will be celebrated at the Museum in a very special way this year. This season the volunteers will take over a large portion of the third floor gallery and fill it with trees, critters, and natural arrangements of all sorts. "Critters, Angels and Stars" will be the theme of the 1983 Christmas show from November 25 through January 8. Also on display will be the well-known doll collection of Ann Wyeth McCoy and a model railroader's dream – more than 1,500 feet of O-scale track with dozens of bridges, trestles, hills, houses and other interesting scenery.

The Museum, a converted century-old grist mill, is a stunning repository of American art and illustration. The art collection includes work by three generations of the Wyeth family and scores of other artists.

Normally open from 9:30 a.m. to 4:30 p.m., the Museum will extend its hours to 8 p.m. from December 26 through the 30th. The Museum, located on U.S. 1 in Chadds Ford, Pa., is closed Christmas Day.

Admission is $1.75 for adults, $1 for children six to 12 years old or students with I.D. cards or senior citizens. Children under six are admitted free.

For further information, call (215) 388-7601.

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John Sheppard has been director of public relations at the Brandywine River Museum and Conservancy for the past 12 years. He was formerly an executive with a large Philadelphia public relations firm and spent 12 years with Associated Press.

Our PHS Horticultural Librarian Recommends Books for Christmas Giving

by Mary Lou Wolfe

The books listed here may be borrowed or previewed at the PHS Library.

Down-to-Earth Women. Dawn MacLeod. Wm. Blackwood, Edinburgh, 1982.

This book collects short biographies of all sorts of British women who gardened including the gardening nuns at Stanbrook Abbey, Lane Loudon, Gertrude Jekyll, herbalists Leyel, Grieve and Rohde as well as V. Sackville-West and Margaret Brownlow. Those who have visited National Trust gardens in England may recognize some of the more obscure individuals who are included. MacLeod has produced an interesting book that brings together information about the well-known and lesser known women who have "cared for the soil."

Jewels of the Plains: Wild Flowers of the Great Plains, Grasslands and Hills. Claude A. Barr. U. of Minnesota Press, Minneapolis, 1983.

Rock gardeners have known this book was coming, many have helped it along and all wish that 95-year-old Claude Barr had lived another year to see it published. Its appeal is as much Claude Barr's story of growing up in Arkansas and becoming a rancher in South Dakota as it is his detailed accounts of the plants he grew at Prairie Gem Ranch. Homesteading during the great depression and the dust bowl experiences are described in his spare, direct preface. The plant information will be of interest to rock gardeners, wildflower enthusiasts and to anyone interested in rare and endangered species. It will also open up the eyes of those who consider those mid-western states a boring part of a cross-country trip.

The Lives of Plants. Doris M. Stone. Scribner's, New York, 1983.

Some gardeners feel a certain amount of guilt about their ignorance of the physiology and ecology of the plants they grow. For those who want a lucidly written explanation of the life cycle of the seed plant, Doris Stone has provided complex information spiced with interesting anecdotes and practical experiments. Dedicated gardeners and teachers will find this book both useful and fascinating.

The Butterfly Gardener. Miriam Rothschild and Clive Farrell. Michael Joseph/ Rainbird, London, 1983.

Although the emphasis is definitely British, there are good suggestions here for American gardeners who would like to attract butterflies, especially for those with sizeable tracts and a penchant for wildflowers. Clive Farrell, who opened the London Butterfly House at Syon Park, also includes instructions for accommodating tropical butterflies in your greenhouse. Black and white drawings and a few beautiful color photographs of butterflies accompany good information on plants that attract butterflies.

Classical Chinese Gardens. Qian Yun, ed. China Building Industry Press, Hongkong Joint Pub Co., Beijing, 1982

A stunning book has been produced by the China Building Industry Press. *Classical Chinese Gardens* will appeal to art historians, landscape architects, and photographers. It will no doubt frustrate future China travelers, for although diagrams are provided for each garden picture, locations are rather vague, e.g., "The Northeast Street of Lou Men, Suzhou" and no overall map is provided. That so many beautiful structures, lakes and garden still exist intact for the public is inspiring. Imperial gardens, 17 private gardens, parks and temple gardens are described (though not with plant identifications) and are beautifully photographed.



Pulsatilla vernalis

The Country Journal Book of Vegetable Gardening. Nancy Bubel. Country Journal Pub. Co., Brattleboro, VT, 1983.

The author says "Most of us who muddle our way into gardening earn our green thumbs gradually." Anyone who has read Nancy Bubel's earlier books knows she has earned hers by twenty some years of intensive gardening, mostly in the Northeast. This book collects columns she has written for *Country Journal,* organizing them calendar style and covering all the topics you'd expect in good direct, opinionated style. These two-page essays make fine bed table reading for vegetable gardeners.

Gardens are for People. Thomas Church, edited by Grace Hall and Michael Laurie. 2nd ed. McGraw Hill, New York, 1983.

First published in 1955 and long out of print, this landscape design classic is once more available. Most of Thomas Church's clients lived in the Southwest, so Eastern readers enjoy it more for its well-illustrated design principles than for specific plant suggestions. There are 316 photos, 36 in color, diagrams and wonderful quotes from old sources.

Rock Gardening: A Guide to Growing Alpines and Other Wild Flowers in the American Garden. H. Lincoln Foster. Timber Press, Beaverton, Oregon, 1983.

This most useful book on American rock gardening is again available, now in a paperback edition. Foster gardens in Connecticut so his cultural instructions work well for our area. He includes basic information for the beginner along with extensive growing and propagating details for experienced gardeners. Graced by Laura Louise Foster's fine line drawings and diagrams, an excellent glossary and good black and white photos, this book is the essential one for any American rock gardener.

Some Suggested Sources for Gardening Books:

HHH Horticultural Books
68 Brook Tree Road
Hightstown, NJ 08520
609-448-9345

Myles S. Pettengill
Middle Earth Books, Inc.
1134 Pine Street
Philadelphia, PA 19107
922-6824

Primex
435 W. Glenside Ave.
Glenside, PA 19038
TU7-7500

Sesslers
1308 Walnut Street
Philadelphia, PA 19107
PE5-1086

Waterloo Gardens
Devon Blvd. & Lancaster Pike
Devon, PA 19333
293-0800

Elisabeth Woodburn
Booknoll Farm
Hopewell, NJ 08525
609-466-0522

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Mary Lou Wolfe is the horticultural librarian for the Pennsylvania Horticultural Society.

Drawing by Laura Louise Foster, courtesy of *Rock Gardening*, by H. Lincoln Foster, Houghton Mifflin Co., Boston, 1968

The DEVIL'S TONGUE: *Your Once in a Lifetime Plant*

by H. Peter Loewer



photo by H. Peter Loewer

The devil's tongue *Amorphophallus rivieri*

Ever since I was entertained in the '40s with Saturday afternoon matinees featuring the moonflowers of "The Werewolf of London," the cannibal plants of "Tarzan's Desert Mystery," and the poisonous blossoms that grew where "Sherlock Holmes Meets the Spider Woman," I've been singularly fascinated by unusual and frankly bizarre flowering plants. Memories of fingery white blooms clawing at spiraling mists and loathsome floral interiors livid in jungle light continually walk along the edge of my consciousness. Oh sure, I like roses and daisies as well as the next, but something happens to my psyche when confronted with growing and flowering the strange.

A case in point is the plant known as the devil's tongue *(Amorphophallus rivieri):* I first read of this and other horrors in a used copy of *Plants with Personality* by Patrick M. Synge (Lindsay Drummond Ltd., London, n.d.) that I found in a bookstore in the mid-70s. After mentioning stapeliads in the chapter entitled "Fly-Pollenated Plants," Synge speaks of one of the largest flowering plants in the known world, *Amorphophallus titanum*, a ". . . gigantic and monstrous aroid [that] grows at an incredible rate, sometimes six inches a day until it opens at a height of eight and a half feet. The mature inflorescence is said to give off an offensive scent, resembling the smell of decayed fish. The inflorescence consists of a gigantic fleshy spike pale-green in color, with touches of white. This spike emerges from the centre of a spathe, a sheath, which at first surrounds it and then opens like a rococo sea-shell with a fringed edge, displaying a rich maroon or liver-coloured inside. . . There is also a smaller species of *Amorphophallus, A. rivieri*, sometimes called devil's tongue, which has a dark red spathe

"You just can't leave it there," said my wife. "I'm trying to be fair but this is too much."

"But I'm afraid to take it outside since the next few nights will be in the low 30s."

"Heaven provides," she said.

about three feet long."

At that time I found no sources for either the huge *A. titanum* or the smaller devil's tongue and all passed from the conscious mind.

Then in his fascinating book, *In for a Penny; A Prospect of Kew Gardens*, by Wilfred Blunt (Hamish Hamilton, London, 1978), again I found mention of the *Amorphophallus* clan.

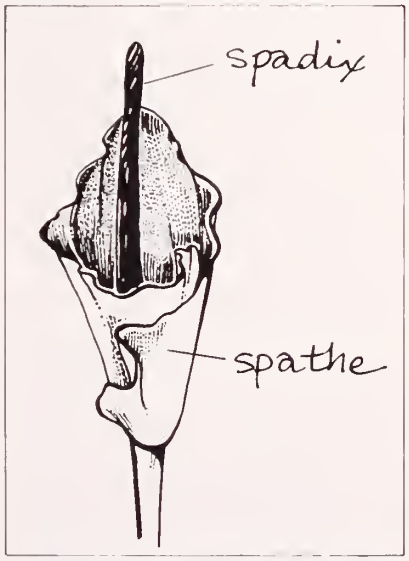
Blunt, in describing the Orangery at Kew, refers to a life-sized drawing of *A. titanum* – 18 ft. long and some 15 ft. wide that was presented to the gardens by an Italian named Beccari who discovered the flower in Sumatra in 1878. "If Puritans contrived its removal," muses Blunt, "surely in this permissive age it could be reinstated. . ." and in the same volume appears the following description of the first flowering at Kew and the plant's initial discovery:

". . . [T]his obscene-looking plant was discovered . . . in the mountains of Sumatra, where it grows to a height of seventeen feet and makes a load for a dozen porters.* The plant, which flowered at Kew in 1890 and was 'one of the sensations of the London season' was a mere dwarf, less than seven feet tall; but its stench – 'a mixture of rotten fish and burnt sugar' – soon drove the curious out of the Orchid House and into the fresh air."

I should have taken my cue from the description of its scent and gone on to better things but in the spring of 1980, I found a source for the devil's tongue and immediately sent for the largest tuber I could procure.

Upon arrival it was planted in a 10-in. Rivera self-watering pot (the first scientific name of this plant was *Hydrosme* referring to its love of water) with a mix of composted manure, potting soil, and sand, one-third each, whereupon it sent up a rather attractive leaf that grew some three feet across and lasted well into fall. I then took a hint from the cultural instructions in *Hortus III* and allowed the earth to dry, the leaf to shrivel. I stored the pot with the tuber in a sheltered spot in the greenhouse at a winter temperature of 50°F.

Early this spring I added water to the pot and set it in a sunny spot in the greenhouse. Activity began within two weeks and a sheathed and speckled shaft burst through the dirt and continued to grow – it seemed – inches a day until on May 22, a twenty-inch spathe began to open about a taller spadix, all standing on a three-foot stem. A masive invasion of flies began, while a pervasive odor wafted through the wall between the greenhouse and our living room.



"You just can't leave it there," said my wife. "I'm trying to be fair but this is too much."

"But I'm afraid to take it outside since the next few nights will be in the low 30s."

"Heaven provides," she said.

I compromised by setting the flower in the rock garden during the day and moving it to the garage at night. This did cause a bit of a problem in the morning as my leaving for work necessitated opening the door in the morning and all that such an act implies.

Visitors to the garden did not know quite what to say about the giant maroon and leather appurtenance set amid the blooming plants of the rock garden so they avoided all mention, which is fairly hard to do with a plant four feet high and surmounted by buzzing flies.

By now it was the end of May and the flower began to shrivel, then slowly dissolve into a gelatinous mass, which in turn dried. The entire plant above the dirt was gone by June 5.

On July 5, the first leaf began to poke through the soil, a normal routine for this plant.

I'm now in a bit of a quandry: It was a most interesting plant but the experience of flowering the devil's tongue would seem to be one of those once-in-a-lifetime experiences that is so beautifully expressed by the old proverb, "Once bitten, twice shy!" There's a gardening friend one town over who is going to get a present very soon.

Source

For those courageous enough to want to try flowering the devil's tongue, International Growers Exchange, Inc., P.O. Box 397, Farmington, Michigan 48024, stocks large and small tubers.

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Peter Loewer runs the advertising art department on a New York weekly newspaper. *Peter Loewer's Garden Almanac* was published by Perigee Books (G. P. Putnam Sons) in September '83. His gardening illustrations and articles have been published frequently in *Green Scene* and other horticutural organizations; he won a national award for an article on grasses in *Green Scene*.

*That description proved to me that the larger plant was beyond my grasp.

Spirited Wine Making

by Jody Petersen

When most of us think of homemade wine we think of something our great Uncle Louie used to make and force upon us. It was strong tasting stuff and sickeningly sweet. Or we remember a bottle given at Christmas from winemaking friends. We would taste it and promptly pour it down the drain, return the empty bottle (good etiquette when dealing with winemakers) and exclaim, "Thank you so much. That was great. You're so clever!"

I must admit I suspect that happened to my gifts of wine more than once when I first started. But the few successes, along with the simplicity and fun of the process, inspired me to try until I got it right. Now, I have offers from acquaintances to "buy a case" from me, as well as friends requesting shares in my next batch.

"How much wine can I get if I buy you 5 lbs. of sugar?" they say.

I have had the best success with berry wines: blueberry, wineberry (seedlings of wineberry plants were originally imported from Europe with the settlers for this purpose), elderberry, blackberry and raspberry. I also experimented with flower wines: honeysuckle, dandelion and violet. For every gallon of flower wine, two pints of flower petals are needed. Imagine gathering six pints of violet heads (*full* pints) or six pints of dandelions and then having to pick the bitter green backing off each flower. The wine came out way too sweet (my fault), and needless to say I was discouraged from making a second attempt. But flower wine is fun to do, and the violet came out a lovely light purple. Also, it's a big hit at parties.

Wine is made by introducing yeasts into a sterile environment and adding sugar, which the yeasts digest to make alcohol. The fruit is primarily for flavoring. The idea is to knock out all the competition, so the yeasts can flourish; therefore everything must be clean, very clean. Bottles and utensils should be washed and then rinsed with the sterilizing solution. (The solution is metabisulfite,* which is mixed with water. It can be used over and over again.) Just pour the solution over all the utensils, corks, trash can, etc., and swish around. Pour it back into the solution bottle. It should keep for a few years. Now you are sterile. (The fruit doesn't need to be sterile.) Here is the recipe I use for blueberry wine:

For every gallon:

- 2 lbs. blueberries
- 7 pints water
- 1½ lbs. sugar (you can always add more sugar later)
- 1½ tsp. acid blend
- ½ tsp. pectic enzyme
- 1 Campden tablet, crushed
- 1 pkg. wine yeast

These last four ingredients can also be bought in a wine hobby store. Wine can be made without these, but it is not as reliably good. A packet of each of the four ingredients (except the yeast) will last most amateur winemakers a long time.

Some basic equipment is also needed:

A large plastic trash can (primary fermenter). Don't wash out your kitchen can. Buy a new one.

Cheesecloth (to hold the fruit). Wine hobby stores sell washable cloth bags, which are even better.

Glass gallon jars (or larger if you can get them)

Corks and fermentation locks

Siphon tube

Funnel

Wine bottles and corks

Sterilizing solution

O.K. Now we are ready. First of all relax. Remember, this is supposed to be *fun*.

Start by taking two pounds of ripe, gently rinsed fruit. Put it in the cheesecloth or cloth bag and tie the top. Take the plastic trash can and lid, wash them out, and then rinse with the sterilizing solution. As I noted before you can reuse the solution, just funnel it back into the bottle. This can is the primary fermenter, or the primary. After the can is sterile, put in the bag of fruit and all other ingredients *except* the yeast. Stir and put a lid on tightly. Then mark the primary as to how many gallons, the date and fruit. Believe me, you will forget.

Things should start happening pretty soon now. The yeast will start working in a day or so, the wine will be foamy, or at least there will be lots of tiny bubbles. Leave the can at room temperature for a week or so (5-10 days). A more precise way to make wine is to use a hydrometer to measure the specific gravity of the liquid or the percentage of alcohol to sugar and water. But that is for the graduating class and plenty of fine wine has been made without it.

A week passes. Get out the one gallon glass jar. (A gallon wine or vinegar bottle is fine.) Wash thoroughly (a run through the dishwasher is best) and sterilize with the solution. Squeeze the juice out of the fruit bag and compost the fruit.

Get out the siphon tube, clean and sterilize it. Carefully siphon the wine from the primary to the secondary fermenter (the gallon jar). The object is to leave as much sediment in the primary as possible. Fill the jar about 2 inches from the top (the very top). Do not leave a jar half empty; the empty space encourages bacteria. Now, put on the fermentation lock.

Fermenting wine gives off carbon dioxide (all the tiny bubbles) that must escape or they will blow the top off the glass bottle. But if the bottle isn't covered, bacteria will get in and ruin the wine. Get a few fermentation locks and corks. Fill the little well with some water and a crushed Campden tablet. Carbon dioxide can now escape and any air that gets in must first pass through the sterilizer (Campden and water). Once the lock is on, the hard work is done and we are three-quarters of the way to wine.

Let the wine ferment for three or four months. Every six weeks or so siphon the wine off the sediment into another clean, sterile gallon jar. This is called "racking" and it clears the wine. It also allows the wine to be tasted as it matures. Does it have a good flavor? Too sweet? Not sweet enough? Better take another sip.

After a few months check the wine for tiny bubbles. This is a sign of fermenta-

*Can be bought in a wine store. Wine Hobby USA in Wayne, for example, will send supplies through the mail. 101 North Wayne Ave., Wayne, PA 19087. Phone 215-MU8-0819.



photos by Jim Plyler, Jr

Homemade wines: (from left to right) blueberry, elderberry and honeysuckle. The butterfly weed to the left is purely decorative.

tion. If the wine is ready there will be no more bubbles, no more "action." If you find the wine too dry, now is the time to add more sugar.

Now we have come to one of the most rewarding (second most) times in winemaking: the bottling. Clean and sterilize the wine bottles that you have been saving all year. I get my bottles from the recycling center. I justify this by returning them when they are empty again. Recycled three times! After the bottles are sterile, siphon the wine into them, then cork tightly. Label the wine and store at room temperature. Now think up a reason to celebrate. Happy Wednesday. Happy January 10.

The keys to successful winemaking are cleanliness and a spirit of adventure – an odd couple. Try new combinations. Anything edible can be made into wine. Add or subtract sugar. Mix two fruits. There is a wine for every taste.

As an acquaintance of mine said after sampling a bottle of my elderberry deluxe, "Thanks for the wine. I found it unassuming, with a bold nose, not at all cloying to the taste, and it laid me flat out!"

I'll drink to that.

Troubleshooting

- **Wine doesn't start to bubble and ferment (within a day or so) when yeast is put into the primary.**
 Try putting in another packet of yeast. The area you are working in could be too cold, or the sugar may not have dissolved completely before the yeast was added.
- **After bottling the corks pop off or the wine fizzes or the bottles explode.**
 The wine was bottled too soon, or the fermentation was "stuck" and has started again. Either drink the wine now (put it in the refrigerator) or put it back into the secondary (clean and sterile) with a fermentation lock until fermentation has stopped.
- **Wine is too sweet.**
 This is an easy one. There is too much sugar in the wine. Yeast can absorb only so much. Keep records of each batch and alter the sugar content to your taste. Some people like sweet wine and if that is the case you won't have to worry about the "wine snobs." Make it sweet.
- **Fruit flies.**
 This trouble comes from not keeping everything completely clean (sugar spilled, etc.) or from not having a tight seal on the fermenters. Working on the wine outside also encourages bugs.



Five-gallon fermenter with fermentation lock.

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Jody Petersen is a second year student at the Arboretum of the Barnes Foundation. She works as a part-time gardener at the Brandywine River Museum, as well as for some local nurseries (perennial and woody plants). She is starting her own small business installing and maintaining perennial gardens. In her spare time she makes wine.



The horse (to the right of the jar) among the selected garden artifacts above has taken on a look of softness and beauty, which it surely never had as a bright coppery casting 30 years ago when such horses proliferated on the shelves of variety stores.

Archeology: Another Side to

by Jane Reed Lennon

Once as a kid, I was trying to plant some iris along the foundation of an old tobacco building at our farm. I unearthed 17 tiny glass bottles, all exactly the same, with pieces of a great many more. We wondered about the bottles and guessed they must have contained some comfort for old Clem Hughs, who lived at the farm and made cigars in the building around 1900.

Gardening on land that has been inhabited before is almost a guarantee of a little archeological sideline. In the huge amount of soil dug and turned in a gardener's lifetime, the chances are good of finding something worth treasuring. And the find can provide a window to the past. Some past inhabitants have had more things to lose or break than others, but people have been losing them for a long time.

As a student gardener in England, I discovered that many of the professional gardeners I met had collections of Roman coins and artifacts. The Winchester area was once covered with Romans and they seem to have dropped plenty of change. There has been a great deal of serious archeology in the south of England and these tiny finds are of no interest to scholars but are a treat to find when you are digging up the dahlia tubers at the end of the season.

Gardening in Philadelphia, where most of the open space was once covered with buildings, might better be called mining for the first season. In my new community garden plot, during the Bicentennial summer, I had cleared away the surface brick and rubble and added bushels of compost to my little plot. Armed with a small digging fork that I favor for such jobs I went to the garden to plant two market packs of lettuce. At



photo by Patrick Radebaugh

Gardening

the bottom of the first hole was a large smooth object. So large, it was at the bottom of every hole I tried. Even lettuce would need deeper soil. I returned with a shovel and later with a helper. My tiny lettuce bed yielded four marble steps! The steps were moved out of the garden and eventually became steps again. If you must move a thousand pounds of something to plant lettuce it is a real plus to have it be usable.

In the garden in back of our house in Philadelphia we found a terrace of brick pavers, covered with six inches of soil. Not all the large finds have been as handy as the terrace and steps. In the same backyard, when we attempted to dig up an old dead Rose of Sharon bush, and wondered what could have killed such a hardy plant, the answer was a few shovels away. The bush was growing in a thin layer of soil, on top of some boards, on top of a brick-lined well. Bush, boards, shovel and very nearly the digger all fell in, in a rush.

This is the point where you must decide whether you are a gardener or an archeologist. A gardener will fill the hole quickly, the archeologist will empty it slowly. We elected to fill the hole with vast quantities of brick and rubble we had gathered from the surface of the garden. There were already a number of privy wells being dug and sifted in our immediate neighborhood. We had no reason to believe that one more would add anything important.

The bush was growing in a thin layer of soil, on top of some boards, on top of a brick-lined well. Bush, boards, shovel and very nearly the digger all fell in, in a rush.

With the well filled and planted over, the new garden continued to yield lost treasure of past inhabitants. Several coins, old marbles, bits of pottery and hardware and the occasional battered toy were turned out as we planted. But most of the treasure was found on the surface after a rain, neatly washed and colorfully obvious. Our young son, Pierre, became the household champ "thing finder." All the tiny artifacts were kept together in a glass museum jar. Our finds span the liftime of the house, from about 1840 when it was built until our move in 1981.

Some gardens are particularly rich in buried treasure. The garden at the People's Light and Theater Company in Malvern is an example. The theater is housed in an old converted barn, and the old farmhouse is now the theater offices. It is a naturally pretty location, and friends of the theater have created a wonderful garden around the buildings.

I have worked on the theater garden several times a month, over the past three years and have dug up all sorts of pottery pieces and other antique leftovers. The wealth of artifacts in one spot seems surprising. No one could have owned and broken so many wonderful objects. The explanation is that the house and barn belonged to a woman who had an antique business there for about 50 years. She must have attended thousands of house auctions over the years, and the cracked and broken objects found their way to the barn and eventually became fill.

Many steep banks around old buildings are the sites of past dumps or fill areas. When some friends began to rearrange large rocks on the hillside in front of their house to make a rock garden, they were horrified to find most of an old car. The car couldn't be moved. It held up the bank. The garden couldn't be moved because the site was a wonderful location. The car was laboriously filled with soil to eliminate huge air pockets. Then large rocks were arranged around and on top of the car to hold deep soil pockets. The car area of the garden is now covered in a sweet smelling jumble of thymes and sedums. A well-rotted 1930 Chevy is not the artifact of one's dreams when it's located in one's front yard.

And finding a car or some other large piece of trash brings us to the question – when is a find an artifact and when is it litter?

This was our child's question when he returned from the garden with some bits of 19th century pottery, the bottom of a 1981 beer bottle, and a broken bit of a 1950s plastic toy.

Will plastic ball-point pens and pull tabs from soda cans be the artifacts that mark our era?

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Jane Lennon farms and gardens in Berks County, where her son, Pierre, collects artifacts, and photographer husband Patrick Radebaugh photographs them.

christmas cactus

PHS has a wonderful specimen of *Schlumbergera bridgesii* or Christmas cactus. It flowers profusely from the third week in December until the first or second week of January. Its beauty and the intense flowering inspired me to write about this foolproof way to have flowers during the holiday season.

The plants are mainly shade-loving during the summer months; from fall to spring they like sun. Originally from Brazil, they are tree and vegetative perching cactus (epiphytic). The plant should have a neutral to slightly acid soil; a mix of peat and loam with sharp sand is suitable. The soil should not be soggy or waterlogged, but continuously moist; watering every few days will accomplish this. The plant should be watered sparingly (so that the soil does not completely dry out) after it has stopped growing and before flower buds set, which is mid-September until after October and again after flowering in January for a few weeks.

Christmas cactus are thermo-photoperiodic, which means they respond to day length and/or night temperatures to set flower buds. Last year our plant was left outside until mid-October set in a dark corner away from artificial light at night. While this cold period at night causes a response in the plant that sets flower buds, temperatures below 40°F would be damaging. With the combination of both the cold treatment and shortened day, nature took care of the flower bud formation; we just added the water.

If you cannot place your plant outside then you can force it to set flower buds. Start around September 15 to control the short day by allocating 12 hours of light. Do this by placing the plant in total darkness for the night (cover the plant with a box or place it in a closet) and remove it from the darkness in the morning. Continue until the tiny flower buds form on the tips.



photo by Margaret Bowditch

Where to Cut Christmas Cactus



Epiphyllum

Once the plant is placed indoors it should not be moved because a change in warmth and sudden movement may cause the buds to drop.

The best time to propagate Christmas cactus is after it has stopped flowering; if done at this time it will produce a 3½-in. potted plant the following year, but it takes two years to flower. The illustration shows where to make your cut; make the cut with a very sharp razor blade. To sterilize the blade, pass it under an open flame for a second. This will kill any bacteria or fungi spores on the surface and prevent infection of either cutting or parent plant. Dust the cutting lightly with rootone. Place the cutting in a warm, dry place, preferably in the sun, until the wounds have dried thoroughly. That may take from three to five days, after which the cutting can be placed in the soil medium.

Joe Kerwin

Sources

California Epi Center
P.O. Box 1431
Vista, CA 92083
(619) 758-4290

Cactus Gem Nursery
10092 Mann Drive
Cupertino, CA 95014
Catalog price: $1.00

●

Joe Kerwin is assistant horticulturist and Philadelphia Flower Show floor manager for PHS.

broccoli: november and beyond

In late April of 1981, I transplanted nine young Green Goliath broccoli plants into the vegetable garden and harvested from them for at least five and one-half months before the first hard frost. After the first large central heads were cut in late May, the plants continued to produce smaller side shoots until mid-November. It was important to pick them every few days to insure constant growth of new shoots. Using a slow-release fertilizer at transplanting time, plus weekly feedings of soluble fertilizer aided in their production, too. They were still bearing well after several freezes had killed off other tender vegetables and ornamental plants.

In mid-November, the afternoon before the hard freeze was forecast, I didn't want to face the fact that these prolific broccoli plants were going to be just a fond memory by the next morning. So I decided to pot up a few just to see how mature broccoli responded to growing in a container and to lower temperatures. Three were transplanted into 8-in. plastic containers with slow-release fertilizer pellets incorporated into the soil and placed in our south-facing, unheated lean-to greenhouse. There seemed to be little set-back to their production of edible side shoots after this mid-autumn move. In addition to the use of slow-release fertilizer in the soil, soluble fertilizer, seaweed and fish emulsion were applied occasionally, but separately.

When the temperature was expected to fall below 20° outside, the kerosene heater was used to prevent freezing in

the greenhouse. With the new models of kerosene heaters this seems reasonably safe, because they are pratically non-tippable and the flame is automatically extinguished if this should happen.

We found this home-grown broccoli to be most welcome, used both cooked and raw. We've transplanted six plants from a new crop into containers to winter over this year in the same manner. Almost any variety of broccoli should be satisfactory to use in this way.

Lee Loveland

●

Lee Loveland won the horticultural sweepstakes at the PHS Harvest Show in 1981. She is both an accredited judge of flower shows and landscape design critic with the National Council of State Garden Clubs, Inc.



Billbergia saundersii

The Bromeliaceae, to which *Billbergia* belongs, is commonly called the pineapple family. *Billbergia* doesn't look much like a pineapple. Neither does it look much like spanish moss, probably the second best known member of the family. It is much easier to grow than either pineapple or spanish moss.

The leaves form a tube an inch or two in diameter and a foot and a half or so long. They are dark or medium green, overlain by pink (especially when grown in bright light) and marked with ivory to silver bars and spots. The edges of the leaves are serrated, with pink, recurved spines. Flower parts are in threes. The sepals are red; the petals, greenish-yellow, tipped with blue; and the anthers, orange-yellow. Although the flowers are showy, they are overpowered by the large rose-colored bracts, which make a magnificent display. Usually, my plant flowers in middle to late November, more or less. However, just to keep me on my toes, it sometimes also flowers in June or July. Each tube flowers only once but sends up offsets after flowering. In time, these will also flower.



photo by Robert Feuer

Billbergia saundersii grows naturally on trees in the Bahia region of Brazil. Like other "air plants" it does well if potted in sphagnum, osmunda, or tree fern. If you don't have these handy, a mixture of perlite and milled sphagnum, in equal parts, works too. A big handful of marble-sized chunks of charcoal (not pieces of charcoal briquette) in a potful of mix will help. Be sure the pot has plenty of crocking for drainage.

Give *Billbergia* as much sun as you can. If you put it outside during the summer, so much the better. At this time, you may want to give it partial shade, especially if it starts turning too red. Temperature and humidity should be what you, yourself, find comfortable. Water the plant thoroughly when the planting medium has become quite dry and always keep water in the leaf vases. Filling the vases with quarter-strength fertilizer is the best way to feed the plant. The roots are used more for support than feeding.

You can propagate *Billbergia* from seed on wet sphagnum or cut off and root the offsets when they reach about a third of the size of the parent.

Robert C. Feuer

Sources

Exotic Bromeliads
744 East Valencia Street
Lakeland, FL 33801
813-683-1388
no charge for catalog

Tropiflora
6610 44th Avenue
Plaza East
Bradenton, FL 33508
813-755-6567
no charge for catalog

●

Robert C. Feuer is a free-lance writer and ecologist with a special interest in bromeliads. He has written articles on plants for *Horticulture, Travel and Leisure,* and the *Beachcomber.*

continued



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keeping poinsettias going from year to year

Although I am not a horticulturist, I have been able to keep our Christmas poinsettias going from year to year.

As the blossoms begin to shrivel and drop after Christmas, I immediately moisten the soil completely and move the plants to an area in our cellar that is dark and about 55°F. The plants are left in that dark environment in their pots without additional moisture until Labor Day. Then I begin gradually to move the plants to lighter and brighter areas. This is a three-step process:

- On Labor Day I move the plants to a kind of twilight area and lightly moisten the soil. The temperature in the area should be no more than 60°F.
- On October 1 I move the plants to a daylight area that has no sun and no overhead lighting. I keep the soil moistened and add about one-quarter of the amount of fertilizer I would normally use for flowering plants. I dilute it with water.
- On November 1 I move the plants to the normal environment in which they will be kept. I water well and add more fertilizer. (I just use any fertilizer suitable for flowering houseplants. I've used six different kinds and it hasn't made any difference.)

The beautiful red bracts first appear around Thanksgiving and begin to fully develop 10 days later. Since most of the plants develop normally, and I like their looks, I don't prune.

I can't promise this system will work for everyone but it does for me.

Thelma Gray

●

Thelma Gray is president of Thelma Gray Public Relations, Inc. Her firm won first place in the Plants in the Business Environment competition for the best use of plants in interior office design. The competition is cosponsored by the Greater Philadelphia Chamber of Commerce and the Pennsylvania Horticultural Society.

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Part of the fun of horticulture is sharing – your plants and your skill. We've been missing the interesting and varied short articles that come in for the Growing Interest section of *Green Scene*.

Growing Interest articles should be about uncommon or successful but hard to grow plants in this area. We're looking for the unique plants indoors and outdoors, woody and herbaceous, fruits and vegetables, large and small. The article should focus on only a single species, should generally not be more than a page and a half (typed, double-spaced). It should detail cultural information, special problems and how you have handled them, and should be accompanied, if possible, by a color transparency, slide or a black and white photo. On the top of the manuscript include your name, address and phone number (day and evening). We will pay a small fee for each article and photo we print.



Announcing a new feature: GROWING PAINS

Starting with the January issue of *Green Scene*, Joe Kerwin, assistant horticulturist, will share with readers the questions and information about gardening that he encounters at PHS. We invite you to submit questions to Joe at PHS, 325 Walnut Street, Philadelphia, PA 19106. Please be sure to include your phone number along with your name and address.

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Jody Petersen toasts with her homemade berry wine. Of her gift of elderberry deluxe a friend wrote, "I found it unassuming, with a bold nose, not at all cloying to the taste, and it laid me flat out!" See page 27.



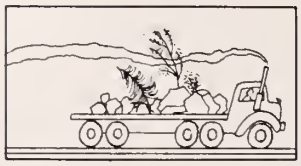
THE green scene

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A spring snowstorm transforms a condominium terrace.
See page 22.



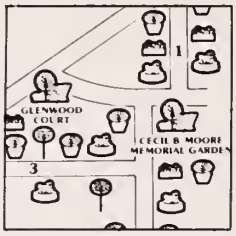
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Front cover: photo by Marie Burns Judge

Back cover: photo by John Swan

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"Nobody Is Interested in Your Personal Opinions"*

Ah, but we are . . .

Among other things, medicine and psychology have provided us with profiles of the Type A personality (driven, impatient, high achiever) as well as profiles correlating certain personality factors with diseases. I haven't seen any immutable profiles of people who choose horticulture as a vocation or an avocation, but I'm sure there aren't many mean-spirited gardeners in psychological and literary studies. Generally, gardeners are thought to be life-affirming and generous. One of the unkindest epithets I've ever heard about a horticulturist is "She won't share – plants or information."

I thought about gardeners, particularly writers, when the July/August issue of the *Garden Writers Association of America Newsletter* arrived on my desk, and I came across a list of do's and don'ts for garden writers. The list concluded with the dictum "Nobody is interested in your personal opinions." That same day an irate writer for *Green Scene* called from out of state, fairly howling with dismay over that advice. His beautiful books and articles are all written from personal experience and wrapped in a cocoon of opinion. I readily agreed with his dissent; after all, how many of us want to read a bimonthly report from a Mendel or a Burbank when we sit down to plan our gardens. Most of us would rather hear from our neighbors about how they achieved those lovely perennial borders.

I thought of that dictum again as I was putting together this issue of *Green Scene,* and I thought about how hard it is to make rules about garden writing. There's room for the straightforward "how-to" reporting and for the complex "why" of gardening; room for stories about the grandest of gardens and for the tiniest of plants. What matters most, however, is the spirit and experience of the growers. The most interesting writers are often the most passionate, not necessarily the best researched. We all have our own pets, but John Fowles's *Trees* comes to mind as a passionate, intelligent and opinionated book; and we can't overlook Reginald Farrer and Gertrude Jekyll.

In this issue of *Green Scene,* as in all issues, the writers are committed, passionate gardeners. They are generous about sharing information. Marnie Flook revised and added detailed information about the tree and shrub list from her hospital bed after surgery to make a deadline. John Leonard took a precious vacation day to come in and add sections to his article about growing orchids in the basement. John Swan honored his commitment to tell our readers about terraced vegetable gardening even though his deadline came during the long hours he worked at the Harvest Show, and Fred Winter took time out from a busy hospital schedule to take Mary Lou Wolfe and me on a tour of his Japanese garden when we were checking it out for inclusion in *Green Scene.* Most of our writers are in it for the love of gardening and sharing that information. To write for us, they steal time from their gardens, their careers and their families. Their experiences and opinions are as related as one siamese twin is to another. We're glad they set aside their trowels to speak to us; they do not have to go to the library first to find out what someone else thinks.

Who's interested in your personal opinions about gardening? We are; you can count on it.

Jean Byrne, *Editor*

**Garden Writers Association of America Newsletter,* July/August, p. 8.



photos by John Swan

Terraced vegetable garden in full summer growth.

Terracing: A Practical Landscaping

by John P. Swan

When designing your garden, the challenge is to solve landscaping problems unique to your own property. The particular problem we faced was to create an entire garden plan out of a wild, tangled mass of underbrush and vines overrunning the property. Much of the land was strewn with serpentine stone tailings from the nearby Brinton Quarry.

It was not a place of beauty, but to a gardener's eye, the undulating land, wandering stream, and mature woodland trees added up to an irresistible opportunity to tame the untamed. Our first step was to properly locate the vegetable garden in all this mess. Since the property did not lend itself to an out-of-sight vegetable garden separate from the carefully tended garden areas, we set about to develop an overall naturalistic garden design that would take advantage of the sloping lay of the land. This meant integrating herbaceous borders, annual flowers, my wife's herb garden, woodland gardens, and a vegetable garden into a unified whole.

These objectives, coupled with the sunshine requirement of vegetables, made it clear that the only available solution was to build the vegetable garden on a south-facing slope near the house. So, we turned to an ancient form of hillside gardening – terracing.

The dense plantings of flowers and vegetables make a happy home for gardener's friends, too. Resident toads grow fat and happy working the night shift, while the bees work overtime helping to fertilize the vegetables.

The formidable task that lay ahead was the removal of tons of serpentine rock rubble making up this 19th century man-made bank. Each terrace section was excavated to a depth of three feet, filled with a rich mixture of topsoil and mushroom soil, and lined with concrete block as a base for the railroad ties, which define each terrace.

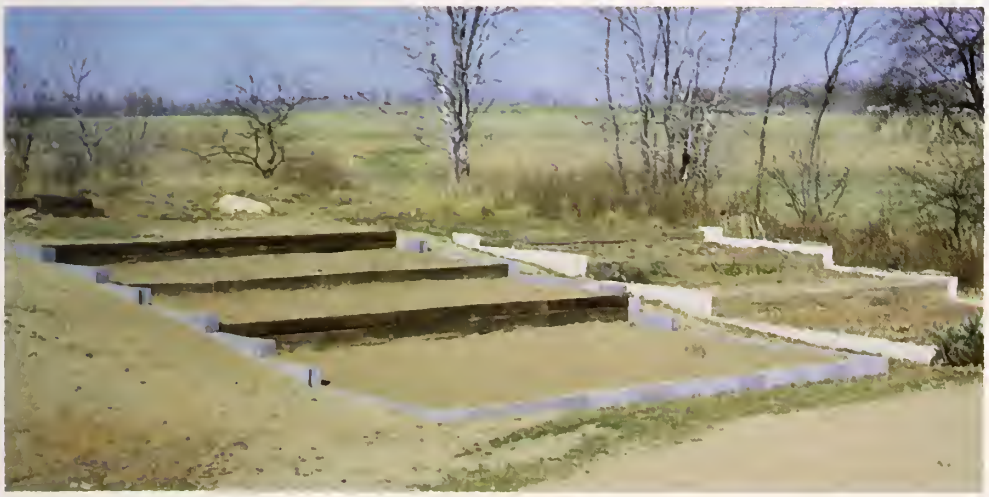
The slope of a bank determines the number of terraces. The steeper the grade, the more terraces. Ours being a gentle slope, we found that three terraces blended well into the natural contour of the land. A four-foot wide grass walkway was placed down the middle, dividing the garden into six manageable areas. This is the only grass anywhere in our garden that is pampered with regular fertilizing and watering. After all, it has to look as good as the vegetables.

Each of the six beds measure 11 ft. x 25 ft., while the overall dimensions of the vegetable garden are a compact 33 ft. x 54 ft. We defined these limits so it would not be too dominant and, to be totally honest, to put the brakes on our runaway enthusiasm for growing more and more of everything. Some gardeners just have to practice self-discipline to save them from themselves.

continued

Preparing for a terraced vegetable garden





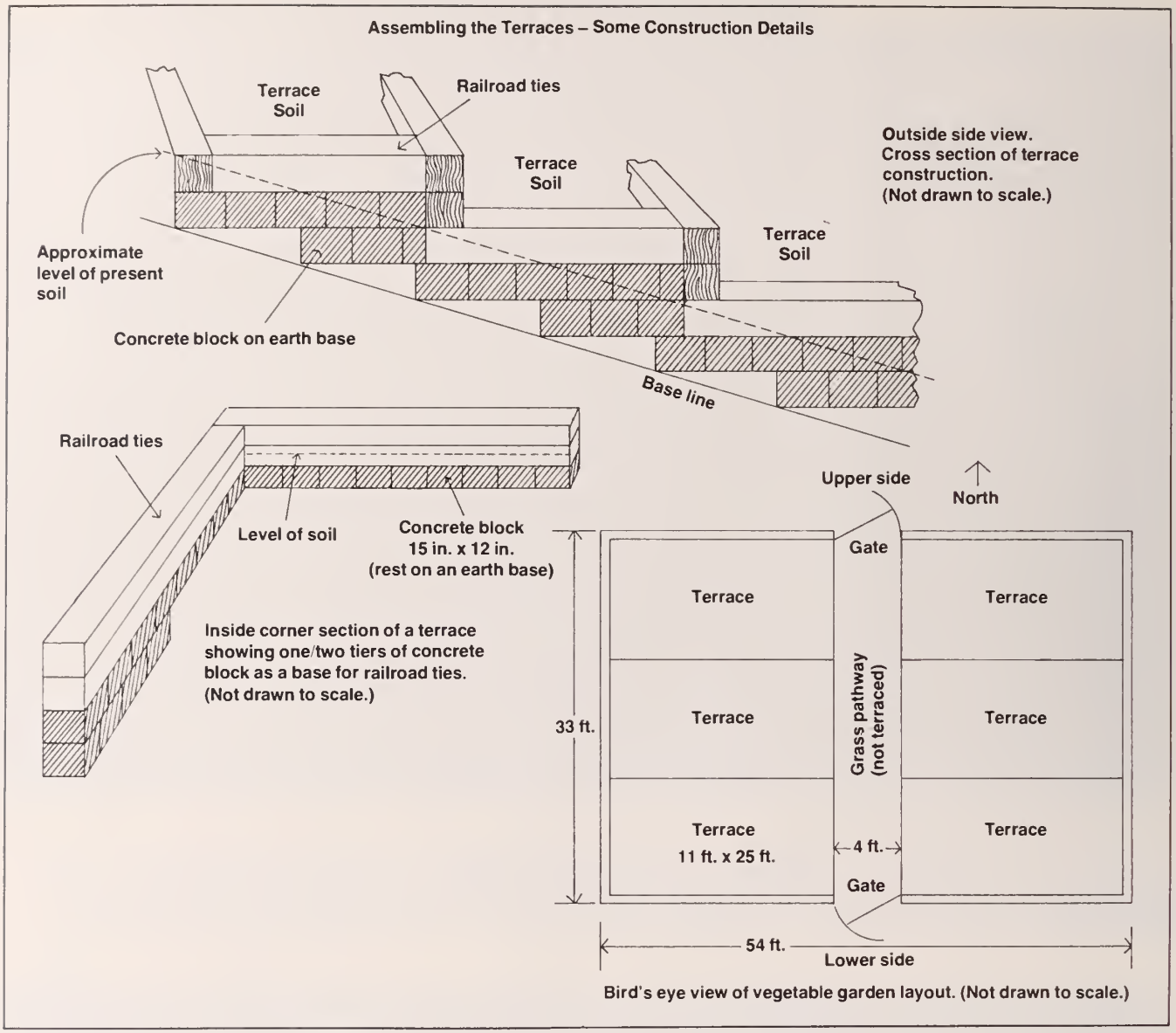
▲
Excavation for terraces. Removing tons of serpentine stone is a summertime career for young helpers.

The basic outline of the terrace garden takes shape at midpoint in construction.
◀

Approach to Vegetable Gardening



Summer flowers complete integrated design of vegetable garden.



Up to that point, we were primarily concerned with the functional problems of construction and size. At that stage, the vegetable garden with its three-foot high wood and wire fencing, looked like a corral intruding on the landscape. The stark, rectangular lines had to be softened. An evergreen hedge was considered, but discarded because it would create a formal monochromatic appearance out of keeping with our naturalistic garden. We decided to frame the entire area with a 2-ft. wide herbaceous border designed to achieve an informal look with splashes of color through the growing season. Perennials chosen for their height, bold textures, and blooming times were closely planted to create a wall-of-flowers effect. The most successful plantings include *Iris sibirica* 'Perry's Blue,' *Hemerocallis* 'Country Belle' and 'Cartwheels,' both brilliant long-blooming yellows, *Phlox paniculata* of mixed colors, *Lysimachia clethroides* (a filler plant that must be controlled), *Lilium tigrinum,* and a delightful introduction from the wild, *Asclepias syriaca,* the common milkweed. Under cultivation milkweeds grow lush and tall. The large pink flower clusters (umbels) fill the night air with sweet scent. In the fall, they reward you with their attractive seed pods. Finally, the finishing touch to the informal effect of the border plantings was provided with accents of the graceful 5 ft. high eulalia grass *(Miscanthus sinensis).*

The very essence of a vegetable garden is found in the subtle pleasures of working the soil, a sense of order in the neat rows of vegetables, pride in watching the plump plants head up or put out their first fruit, and an inner sense of self-sufficiency at harvest time.

A good gardening friend in Chester County, Mary Cornwell, gave us a rooted sprig of an unusual variety of *Clematis paniculata,* sweet autumn clematis. That gift inspired us to use vines to fill in behind the flower border and create the full, soft effect of a green screen. This particular clematis is a joy for its fragrant, profuse white flowers, but must be kept under control by shearing.

We are currently training two other vines along the fence, *Clematis spooneri,* a vigorous white flowered variety and *Ampelopsis brevipedunculata* 'Porcelain Berry,' noted for its attractive foliage and clusters of bright blue berries.

The dense plantings of flowers and vegetables make a happy home for gar-



Garden view shows design relationship of one perennial bed to terraced vegetable garden.

dener's friends, too. Resident toads grow fat and happy working the night shift, while the bees work overtime helping to fertilize the vegetables. Monarch butterflies pollinate the milkweed flowers. We simply look the other way when their striped offspring make a meal of the leaves. The caterpillars of the striking swallowtail butterflies have a penchant for parsley, so we plant enough for everyone.

The very essence of a vegetable garden is found in the subtle pleasures of working the soil, the sense of order in the neat rows of vegetables, pride in watching the plump plants head up or put out their first fruit, and an inner sense of self-sufficiency at harvest time. These rewards go hand-in-hand with the practical pleasure of providing good food for the table.

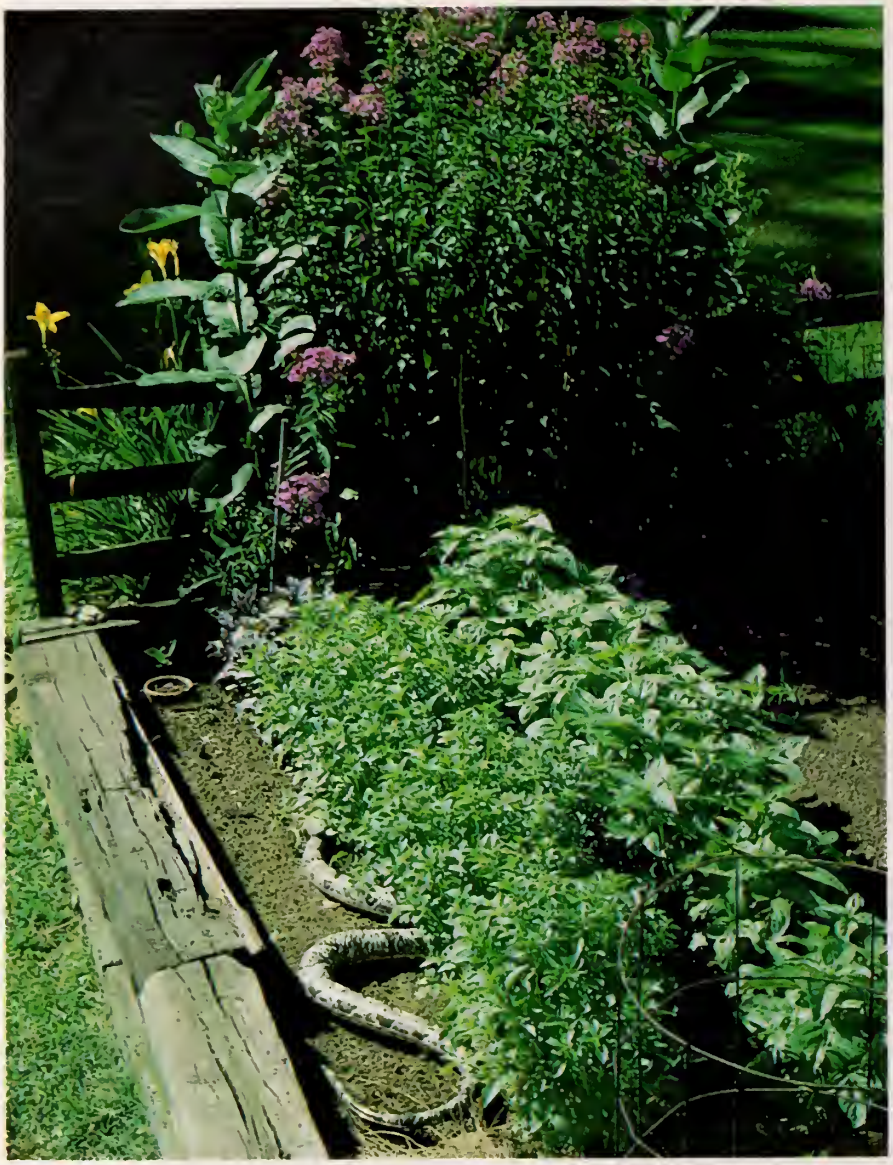
But a terraced garden, by its very

continued



Pepper seedlings are protected from cold spring nights, sudden frost.

Terracing: continued



Pet snake (plastic) discourages vegetable varmints. Basil (minimum and Italian) with phlox and milkweed in background.

A Selection of Varieties Successfully Grown in the Terraced Garden

All tomatoes and peppers are contained in (concrete reinforcing) wire cages. This protects them from wind and storm damage, but primarily controls growth upward instead of outward. This also makes it possible to grow more plants in a given space, thus increasing yield.

VARIETY	SOURCE
Tomatoes	
Early Cascade	Leddon
Improved Rutgers	Harris
Royal Chico (Romano)	Herbst
Yellow Pear	Harris
Red Plum	Stokes
Bitsy VF	Park
Peppers	
Sweet	
Cubanelle	Harris
Canape	Harris
Gypsy	Harris
Banana	Stokes
Fushimi Long Green	Amer. Hort. Society (seed exchange 1983)
Pusztagold	Epicure
Hot	
Anaheim TMR23	Park
Hungarian Wax	Harris
Jaldpeño	Herbst
DiNapoli	Epicure
Thai Hot	Park
Serrano Chili	Herbst
Swiss chard, Ruby Red	Herbst
Chinese cabbage, Jade Pagoda	Harris
Parsley	
Darki	Stokes
Italian	Harris
Lettuce	
Fordhook	Burpee
Green Ice	Harris
Ruby	Harris
Peas	
Sugar Rae	Harris
Snowbird	Burpee
Spinach, Fabis	Harris
Bush Beans	
Kentucky Wonder	Harris
Italian Jumbo	Harris

stair-step design, draws the eye. Neatness and overall appearance assume greater importance in this kind of vegetable gardening. All vegetables are chosen for their upright or compact growing habit. We do not attempt to grow sprawling squash or other space-eaters. Tomatoes and peppers are densely planted in wire cages made from concrete reinforcing wire. Lettuce, carrots, spinach, swiss chard, chinese cabbage, sugar snap peas, parsley, basil and other smaller crops are planted along the edges of each terrace. Bush beans and onions are grown in quantity and are provided their own terraces.

Beds are mulched with salt marsh hay to six inches or more. Beside holding soil moisture, reducing weeds, cooling roots, and being essentially fungus-free, salt hay has a pleasing textured appearance and can be walked on without compacting the soil.

In the fall, we clean garden debris from all terraces. Mushroom soil is added and the soil tilled for neat winter appearance. Another season will have passed, and we can look forward to the ultimate pleasure of the compulsive vegetable gardener: to gaze at the terraced garden in its pristine appearance and know there is *nothing* to do!

Sources

Vegetable seeds:

W. Atlee Burpee Company
300 Park Avenue
Warminster, PA 18974

Epicure Seeds
Box 69
Avon, NY 14414

Harris Seed Company, Inc.
Moreton Farm
3670 Buffalo Rd.
Rochester, NY 14624

Herbst Seedsmen, Inc.
1000 N. Main Street
Brewster, NY 10509

Orol Ledden & Sons
Center and Atlantic Ave.
Sewell, NJ 08080

George W. Park Seed Company
SC Highway 254 N
Greenwood, SC 29647

Stokes Seeds, Inc.
737 Main St., Box 548
2299 Stokes Bldg.
Buffalo, NY 14201

Salt hay

Building supply houses primarily

●

John Swan is a member of the PHS Publicity Committee. John and Ann Swan's gardening expertise with peppers was recorded by Jane Pepper in May, 1980 (Vol. 8, No. 5) *Green Scene*.

PLANT SOUVENIRS: Are They Deadly or Benign?

by Amalie Adler Ascher



continued

PLANT SOUVENIRS: Are They Deadly or Benign? continued

It seems harmless enough. You're walking along, admiring the scenery in some strange land when suddenly you spy a nut or a pod or perhaps an entire plant that takes your fancy. You examine it, then slip it into your pocket or handbag. On your return home, you forget, or even deliberately neglect to declare your find, and sail past the customs inspector, who is none the wiser.

Plant and animal pests and diseases cost Americans over $12 billion annually.

You have acquired a souvenir to remind you of your trip, and best of all, it was free. Or was it?

Plant and animal pests and diseases cost Americans over $12 billion annually. Many of our most destructive pests are foreigners that cause greater damage in the United States than in their native environment, where natural enemies may hold them in check.

The giant African snail, that pest of leaf crops, made its way to the United States in the pocket of a small boy. Attracted to two shells lying on the ground, he brought them home. His parents didn't know he had them, nor did the customs examiner. Inside the shells, snails were hibernating. Emerging in their new surroundings, they reproduced and multiplied. The pests were finally eradicated, but the cost was high. Land snails are on the Animal and Plant Health Inspection Service (APHIS) list of items prohibited from entering the United States. Sea snails, however, are in the "admitted" category.

Joe Cavey, a Plant Protection and Quarantine (PPQ) officer with the U.S. Department of Agriculture, has many such stories to tell. His job is to protect plant and animal life in this country from foreign insects and diseases that could damage crops, forests, gardens and livestock, not to mention sending up food prices. He and others in his department examine cargo for wood boring insects, board and inspect ships entering the



photos by Susan Rosenberg

Baltimore harbor, and meet international flights coming into Baltimore's Washington International Airport, or stand by in case customs inspectors need them. It is illegal for travelers to bring many types of meats, fruits, vegetables, plants, animals and plant and animal products into the United States without a permit, or at the very least an O.K. from the U.S. Department of Agriculture.

The presence of pests on plants or plant parts may escape detection by the untrained or naked eye, especialy if the pest is in the egg or larval stage. The female fruit fly, for example, makes such a tiny puncture in the skin of an orange when she deposits her eggs that the hole is not discernible. That's how Medfly was transmitted in California. Although a Medfly infestation also occurred in Florida, Harvey Ford, deputy administrator of APHIS, said that authorities there acted quickly to trap, to apply pesticides, and to regulate the movement of host commodities. In a typical year, APHIS says, spot checks by agents turn up more than 200 such Medfly larvae in confiscated fruit.

dirty work

Who would suspect the lowly pine cone of dirty work? Yet buried deep inside its scales, Cavey says, weevils or seed wasps may lurk, waiting until the time is ripe to emerge. Brought back from a trip, say, to England or France, the pine cone carrier deposits the insects in the traveler's backyard to feast on his conifers, he and his relatives moving on to other neighborhoods. Not all foreign pine cones, of course, are vehicles of harmful insects, but to play safe, they should be declared for inspection.

The next time you contemplate bringing home some pretty tree bark from another country, remember that the bark beetle it may harbor is not too unlike the one responsible for spreading dutch elm disease. There are many different species of the bark beetle, Cavey says, one kind capable of surviving as an adult in partially dried wood for up to 20 days. The bark beetle reveals itself, Cavey notes, by making small shot-like holes perfectly round and 1/16 to 1/8 in. in diameter. Other signs that he is present are galleries or trails left by larvae.

The bark beetle is also fond of inhabiting nutmeg seeds, which are ornamental as well as flavorful. But fresh nutmeg seeds, especialy from Jamaica, might be infested with a type of bark beetle that so far has not managed to migrate to the United States. "There are hundreds of thousands of species of insects that are not found here," Cavey says, and his aim is to see that they keep their distance.

Thrips, he said, could destroy an entire nursery industry engaged in raising the kind of plants these pests attack. If you bring home one if its host plants, the insect has an even better chance of surviving. Although they can't say for sure, experts believe that nursery stock was the vehicle originally transmitting thrips to the United States. Beetle larvae could have been present in soil clinging to roots. Soil, whether in container

The next time you contemplate bringing home some pretty tree bark from another country, remember that the bark beetle it may harbor is not too unlike the one responsible for spreading dutch elm disease.

plants or attached to bare-rooted plants, is an acknowledged carrier of pests and disease. Consequently, potted plants from most countries are on the list of prohibited items. Canada is excepted, Cavey says, because pests in that country are similar to those in the United States.

The greatest concern about soil is that it might contain the most feared of all soil-borne pests, the golden nematode. It is a microscopic eelworm that bores into the roots of Irish potatoes. In Europe, when the pest heavily infests fields, yield is cut drastically, a crop produced only every four to seven years.

The Colorado potato beetle's primary host was a weed related to the wild potato, Cavey explained, to illustrate what might happen if a vacationer attempted to bring home wild herbs to remedy his ills. Until the early settlers moved West and planted potatoes along the way, the Colorado potato beetle's only plant host was a weed. But after it found the potato, it became an agricultural problem.

Although he doesn't rule out the possibility entirely, dried plant materials, such as leaves, don't pose a major threat of transmitting pests let alone disease. But if the drying process is incomplete, pests could still be feeding. As the flower or leaf finally loses its life's juices, it becomes less and less palatable. The insects, looking for something better to eat, flies from the vase displaying the dried arrangement to the garden and beyond.

Smuggling food, plant and animal products into the United States is a federal offense, punishable by a fine and/or imprisonment. But you can import many plants legally and safely if you go about it in the right way. If possible, determine in advance the entry status of the plants or plant materials you intend to import, mail or bring into the United States. Some items are admitted without restriction other than inspection, others are banned, and still others may be admitted with USDA approval in the form of a permit. To obtain the free pamphlet, *Travelers' Tips on Bringing Food, Plant, and Animal Products into the United States* (Program Aid No. 1083), write to Ms. Bonnie Aikman, USDA/APHIS Information, 6187 Federal Building, Hyattsville, MD 20782.

In fiscal year 1982, agricultural officers cleared for entry more than 298 million travelers and additional millions of pieces of baggage. They also inspected 245,863 planes that brought air travelers and cargo to the United States. During that year officers intercepted more than one million regulated agricultural products, and from those interceptions found 38,370 plant pests and diseases that could be readily identified as dangerous to our agricultural industry. They also intercepted more than 100,000 units of unauthorized meat and animal by-products that had the potential to carry disease that could infect American livestock and poultry.

In addition to inspecting passengers and their baggage, agricultural officers make sure that international airlines handle and dispose of foreign garbage and food waste properly. Safe disposal under federal regulations must include sterilization, incineration or grinding into an approved sewage system.

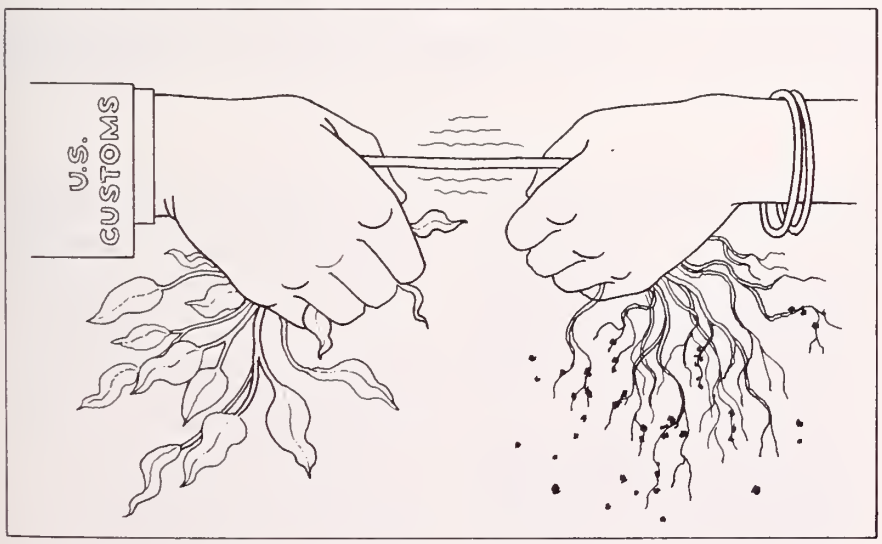
Commercial cargoes of agricultural products are controlled by PPQ officers, who conducted 461,213 such inspections in fiscal year 1982. Mail packages from foreign countries are also processed to detect prohibited agricultural items. Officials intercepted 22,856 pounds of meat and animal products from parcel post packages last year.

■ ■ ■

A new carbon dioxide baggage inspection device to detect the presence of fruit in luggage has been developed and will become operational at major airports in 1984. The size and shape of an old-fashioned breadbox, the instrument has a high degree of accuracy and can examine suitcases at the rate of about two seconds per item.

Long after they are picked, fruits continue to release carbon dioxide. When unusual amounts are emitted by suitcases (dirty clothes, unfortunately, also give off the compound), the detector alerts USDA inspectors to the possible existence of contraband fruit. In closed surroundings such as a suitcase, carbon dioxide levels from fruits can be as much as 100 times higher than in the outside atmosphere. Each machine costs about $5,000, which is far less costly than the $40,000 price of an X-ray machine.

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Amalie Adler Ascher is a columnist for the *Baltimore Sun*. Her articles have appeared in the *New York Times, Christian Science Monitor, Mechanics Illustrated,* and *Flower & Garden.*



photo by Ana D Thompson

DISPROVING THE MYTHS:
Successfully Planting a Ground Cover Beneath

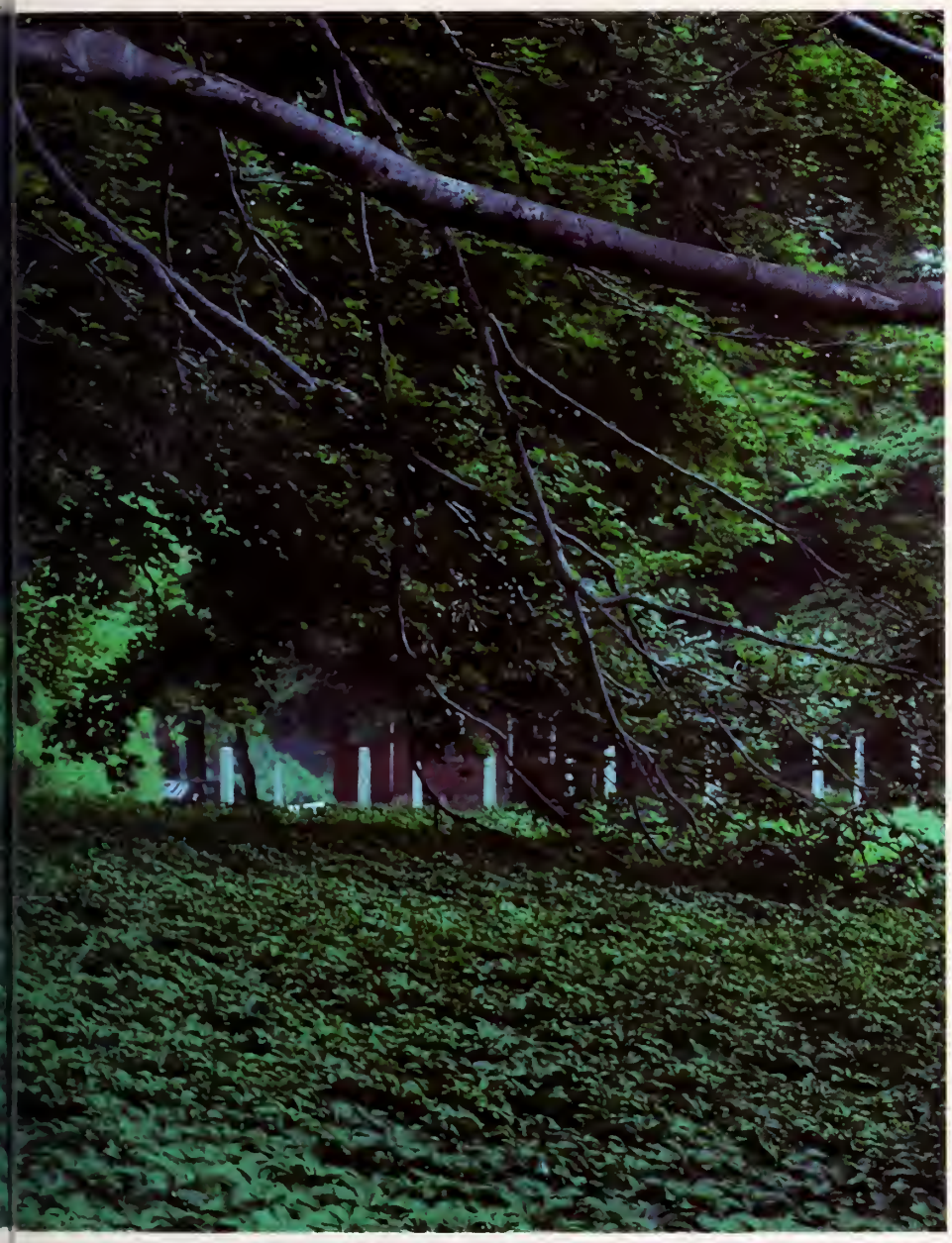
by Ana D. Thompson

When my children were growing up, a favorite pastime was to walk through the fields and have a picnic at the foot of a magnificent american beech tree that grew on a hillside near our house. Its gnarled roots provided a multitude of table tops, and its wide expansive trunk encouraged us to lean back and enjoy a southeasterly view across a lovely meadow. Another aspect that made us especially fond of this spot was that behind us to the northwest was a climax woodland ripe for exploration filled with red oak, tulip poplar, ash, dogwood and many grey-barked cousins of this ancient specimen.

Several years later we were fortunate enough to be able to build our present house on that beautiful site. Our most important priorities, we told the architect at the initial meeting, were to have the house and beech tree complement each other and to protect the tree at all costs during construction. In choosing exterior materials we were able to find fieldstone that picked up the cool grey tones of the bark and the warm sienna of the autumn leaves. My plans for the landscape evolved concurrently with the architect's allowing us to keep the inside-outside relationship strongly in focus throughout the design phase.

Soil for ground covers should be prepared as carefully as one would for the finest lawn.

When planning the design for our former picnic site we decided to challenge the myth that nothing will grow



◀ A pachysandra carpet beneath a beech tree.

a Treasured Beech Tree

under a beech tree. Our goal was to have the 3,000 square ft. area that extended to the tree's drip line transformed into a curvalinear carpet of pachysandra. Here's how we did it.

planting time

From the choice of early fall or spring, we chose the middle of September. We staked out space and brought in enough topsoil to cover the area to a level of approximately one foot. We felt that this was sufficient to allow the pachysandra to take hold and still allow the surface roots of the beech tree ample room to breathe.

soil preparation

Soil for ground covers should be prepared as carefully as one would for the finest lawn. Because good drainage was doubly important in our case, i.e., the healthy survival of the tree's surface roots and the strong development of the pachysandra's roots, we wanted to be sure that a constant supply of oxygen was available. If you do not have good soil drainage, and water replaces the air in the soil, the roots will suffocate. To aid drainage, we added peat moss and spread it over the topsoil at a depth of 2 in. and worked it to a depth of 6 in. The last thing that we did before planting was to work a 5-10-5 fertilizer into the bed at the rate of four to five pounds per 100 square feet.

planting

There is no rigid rule in determining the number of plants for a given location. The spacing is an individual matter, usually determined by the size of the area to be covered, how soon you want the area to be filled in, and last but not least, available funds. Since our area was such a large one we opted for rooted cuttings on 8-in. centers. This meant a two to three year wait; a 4-in. center spacing would have filled in about a year.

the weed problem

If weeds are not controlled they will quickly take over and turn enthusiasm into frustration. To avoid that, we applied a pre-emergent herbicide, simazine (e.g. Princep), the following spring to the newly planted area. Pre-emergent herbicides must be applied before the weeds begin to germinate to prevent their growth. They should be applied before the ground warms up, preferably before March 1. In addition to keeping the area free of weeds, the soil must be moist if the herbicide is to be effective. There are two forms of simazine on the market, granular or wettable powder. The granular is safer because it does not rest on the leaves, causing damage. We applied the granular form by the broadcast method, following that with a good soaking. We then applied a 3-in. to 5-in. thick layer of shredded hardwood bark mulch, an excellent mulch that is easy to apply and very attractive. We repeated our simazine application during the next two springs and mulched whenever we felt it was necessary. By fall of the third year we achieved our goal, a lush, dense carpet of pachysandra to complement our favorite tree.

●

Ana D. Thompson is the founding partner of Thompson Design Associates, Berwyn, Pa., a landscape architecture design service for commerical, industrial and institutional clients as well as city and suburban residential landscapes. The Thompson's own garden was opened for the Shipley Secret Garden tour in May 1983.



MOVING TO THE CITY:
A Rock Gardener's Dilemma

by Marnie Flook

In 1955, to accommodate our growing family, we built a large house on property surrounded by a climax forest – oaks, tulip poplars, beech and dogwood. Twenty-five years later, our children grown, the time had come to move. This decision was probably the most difficult we had ever made, since during those 25 years we had created a mature and refined property including a greenhouse. The whole family loved the place.

We had continued to add to the house and to build more and more gardens. Planting the garden and rock walls (originally built to retain a steep slope behind the house) started me on my involvement with rock garden plants. I became interested and enthusiastic about all of these plants, including alpines, dwarf conifers and shrubs, dwarf rhododendrons and other ericaceous plants. Native plants were added to this list when I started planting the shadier areas in the woods.

As interest and enthusiasm grew, I joined horticultural and plant societies: the American Rock Garden Society, Alpine Garden Society and American Rhododendron Society among others. I took courses at Longwood Gardens and read everything I could find about rock gardening and rock garden plants. My husband and I visited gardens and photographed alpine plants in the mountains of the United States, Canada and Europe.

I became fascinated not only with growing these beautiful little plants, but also with propagating them, both from cuttings and from seeds collected in the wild or obtained through plant society seed exchanges. I succumbed to every rock garden plant catalog I read and every nursery I visited. All in all, I was completely addicted.

The time had come, however, to move on. We moved out of our house in January 1980 (exactly 25 years after we moved in) and moved into a townhouse in the city, next to a small strip of wooded parkland, in October 1981. A second floor balcony and a 25 ft. by 35 ft. garden, tiny by our previous standards, overlooked this piece of woods. Once the decision to move had been made, we were confronted with major gardening decisions.

setting criteria for the new garden

Some of the questions we asked ourselves were: What were the most successful parts of our former garden? What did we *not* want in the new one? What *did* we want? Which trees and shrubs did we want? This question was difficult for me since I would like to have one of almost every hardy plant grown – plus some that are impossible to grow. Finally, how could we combine all these ideas into one small garden?

One of the most successful parts of the old garden had been the rock wall plantings. Walls required minimum maintenance; since the plants' roots were kept cool and moist, the plants stayed under control and seemed to live longer, and they looked great against the rocks.

Some of the questions we asked ourselves were: What were the most successful parts of our former garden? What did we *not* want in the new one? What *did* we want? Which trees and shrubs did we want?

Mound gardens on each side of the front door had also worked well and were much more interesting than the original row of yews removed several years earlier. The plants were visible from inside, allowing the full enjoyment at close range of early-blooming little bulbs such as *Scilla, Crocus* and *Galanthus.* Similarly, we enjoyed a mound garden next to the glassed-in porch throughout the year. We were able to catch the short-lived bloom of *Jeffersonia dubia,* to appreciate the delicate flowers of *Epimedium youngianum* 'Niveum' and the lush flowers of the double bloodroot, *Sanguinaria canadensis* 'Multiplex.' And we enjoyed another perspective when the mound was lit up at night.

Plantings in the woods were most satisfactory and effective. We followed the progress of the wild flowers – some native in the woods like the bloodroot *(Sanguinaria canadensis)* and hepatica *(Hepatica triloba)*; and some planted, like foamflower *(Tiarella cordifolia)* and shortia *(Shortia galacifolia).* We especially enjoyed combinations of azaleas when they bloomed in May.

What did we *not* want in the new garden? We did not want to have to do a lot of pruning, weeding, cutting-back and spraying. We did not want ivy or any other invasive plant. No plants with thorns and no grass. And no leaf-raking.

What **did** we want? We wanted the small garden to be planted with trees and shrubs that would be interesting particularly in the fall, winter and spring. We wanted it to provide some privacy and a good background for an area where I could grow some of my favorite miniature plants. We installed a small greenhouse plants in the summer. The in this garden was needed for holding greenhouse plants in the summer. This problem was solved by fencing off a small space in the garden for a peat bed, which is also useful for forcing pots of bulbs and for extra garden plants.

the greenhouses

The greenhouse in our country house had been 14 ft. wide and 18 ft. long and had three benches. For many years the center bench had been dedicated to a miniature indoor garden, a complete little landscape with ponds, rocks, a cascading stream and live plantings to scale. Small shrubs were used, and when they grew out of scale they were moved outside and replaced with new small ones. Since this greenhouse was

continued



View from the front door of the town house. Raised beds with trees and shrubs beyond.

photos by William M. Flook, Jr

◄ The New Garden



Winter view from the house – paperback maple.



The author's country garden.

◄ The Old Garden



photo by William M. Flook, Jr

The city greenhouse gets full sun on the third floor roof deck.



photo by Lubitsch & Bungarz

An overview of the townhouse garden.

shaded in the summer by large deciduous trees, the little garden could be kept going year-round. Other benches were for growing tender azaleas and camellias, forcing bulbs, growing alpine plants in pots, and for propagating. The winter temperature was kept at 50°.

Our city greenhouse is only 7 ft. by 11 ft. and gets full sun on the third floor roof deck. Although small, it holds a **lot** of plants on and under the single bench. It is kept at 40° on winter nights, and provides us with flowering bulbs and plants from December to April. It is emptied in the heat of the summer.

our selections for the smaller spaces

We made a list of the trees and shrubs we liked and hoped to use in the new garden. The list included those plants that had proved themselves in the old garden plus those that had features we thought would be effective in the new one. No large trees or shrubs were actually moved from the old to the new garden; we acquired new ones. (See box.) We obtained professional help in the layout. Trees and shrubs were to provide the background for the main feature of the garden: a group of raised beds to be planted as miniature gardens, providing many of the features and advantages of the rock walls at the old garden.

In these raised beds I planned to grow some of the best of the hundreds of little plants I had grown earlier. I wanted to use the ones that had seemed the hardiest and had not gotten out of hand. I also wanted to try plants I had read about or seen in other rock gardens and that I thought might work well in these small beds.

I had photographed the troughs in the Edinburgh Botanic Garden in Scotland. These were groups of three and four stone troughs of varying heights with appropriate ground covers planted around their bases. We would have liked to use stone for our raised beds but that seemed impractical, so instead we decided to build them of 4 in. by 4 in. treated timbers.

The raised beds were filled with a mixture of topsoil, builders sand (coarse) and peat moss. A few rocks were carefully placed to give the impression of a rock garden. The more permanent plants – the dwarf conifers, heathers, other dwarf shurbs – were planted first, then the smaller plants, some I had moved with me and other new ones. In all, about 120 little plants went into the four beds. A pebble mulch was added to give a neater finished look and keep the soil cool and moist.

Most of the plants in the raised beds grew well, but we had problems with some of the plantings beyond, mostly due to poor drainage. Several shrubs died and had to be replaced. We belatedly installed drainpipes and mounded the problem areas, which not only cured the drainage problem but made the garden more interesting. We also planted several hundred spring-blooming bulbs and have begun to add a few dwarf shrubs and some larger rock plants to these areas.

We've now lived here for two years and the garden is just over a year old. The trees and shrubs have begun to grow and blend together providing some privacy and an attractive background for the raised planters. The plants in these planters – 120 species from 65 genera – give me plenty of opportunities to pursue my hobby of rock gardening. Little by little I am learning which ones do best here. Some are spreading too quickly, some have died (to be replaced by others waiting in the peat bed) and some have thrived and done better than they ever did in our former garden.

I had hoped to find a spot where I might grow a few of my favorite wildflowers, but most of the garden receives too much sun. We did find, however, a shady north exposure close to a short

length of six-foot stockade fence between us and our neighbor's garden. Here I have placed the clump of shortia (dug from the woods the day we decided to leave the old house), several ferns, some *Jeffersonia dubia* grown from seed, and some early bulbs, all visible from the front window. Partridgeberry *(Mitchella repens)* and bunchberry *(Cornus canadensis)* are thriving along this fence, as is a large clump of foamflower *(Tiarella cordifolia)*.

There is no way to completely regain the feeling of our original garden, isolated in the woods, surrounded and shaded by mature white oaks. But we do have the raised beds filled with enough little plants to provide the challenge of keeping them growing and happy. We have these plants where we can enjoy them just by looking out the window or opening the door. As the surrounding trees and shrubs mature the feeling of privacy will increase.

Some of the positive results of the move have been my added awareness and appreciation of trees and shrubs. I had concentrated on the little plants for so long that I often forgot to look up and see the big picture. Being restricted by the garden boundaries has been good for me. When we lived in the woods, the spaces beyond the confines of the garden seemed endless, and the temptation was always there to build another garden, to keep spreading out; ever increasing time and effort went into maintaining the ever-expanding gardens. In the city the space is very strictly limited, and we are forced to concentrate our efforts on trying to perfect something small and manageable. There's a lot to be said for that.

This townhouse garden will be open for Wilmington Garden Day on May 5, 1984. For more information, contact Mrs. Thomas Alderson, 522 Brighton Road, Wilmington, DE 19809.

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For more about rock gardening, check the Brooklyn Botanic Garden Handbook on *Rock Gardening;* Marnie Flook was editor of the Handbook; she also has an article "Practical Rock Gardening" in the Brooklyn Botanic Garden Handbook, *Low Maintenance Gardening* (Vol. 40, #1, Spring '83). Marnie Flook is a director of the American Rock Gardening Society, and is actively involved with the Delaware Valley Chapter. She is also a member of the Board of Directors of Longwood Gardens.

Background Trees and Shrubs Selected for a City Garden

TREES

Botanical Name	Common Name	Reason Plant Was Chosen
Acer griseum	paperback maple	Red-orange fall foliage and its peeling bark, which is especially handsome in winter.
Acer palmatum 'Dissectum'	japanese cutleaf maple	Fern-like foliage, interesting branching and good fall color.
Cornus florida	flowering dogwood	A native tree, attractive in any season.
Cornus kousa	korean dogwood	Blooms three weeks later than native dogwood. Colorful red fruits and attractive exfoliating bark on the mature tree add winter interest.
Ilex X *meserveae* 'Blue Prince' and 'Blue Princess'	holly	Year-round dark green mass, plus profuse red berries in late fall and winter.
Magnolia virginiana	sweetbay magnolia	Glossy, nearly evergreen leaves, creamy white flowers, red seed pods and graceful growth habit.
Pinus cembra	swiss stone pine	A handsome, slow-growing evergreen with different texture.

SHRUBS

Corylopsis pauciflora	buttercup winter hazel	Early bloom – clusters of pale yellow flowers before the foliage appears. We have had some second thoughts about this one, since the leaves are large with a rather coarse appearance, which is not in keeping with the other plantings in this garden.
Enkianthus campanulatus		An erect Japanese shrub, deciduous, with clusters of bell-shaped yellow-orange flowers in the spring and striking fall foliage.
Ilex crenata 'Excelsa'	japanese holly	A compact shrub excellent as a hedge. Small dark evergreen leaves and a profusion of black berries in the fall.
Ilex verticillata	winterberry	A native deciduous holly producing a profusion of red fall berries that last for most of the winter.
Pieris japonica	japanese andromeda	Always one of my favorite shrubs. Evergreen leaves and colorful buds in the winter, flower-like new growth in the spring, and drooping clusters of bell-shaped flowers in the early spring. NOTE: lacewing has been a problem requiring periodic spraying in this sunny location. (We sprayed with Malathion every 10 days in May and June.)
Rhododendron 'Boule de Neige'		A reliable hardy shrub with glossy evergreen leaves and large showy balls of white flowers in early May.
Rhododendron mucronulatum		A deciduous rhododendron with very early purplish pink bloom. The earliest bloom in the garden, it is a very welcome and beautiful sight in March or early April.
Rhododendron 'Palestrina'		An evergreen, small-leaved rhododendron. Profusion of large white blossoms with speckled green throats in early May. Again an old favorite.



TRANSPORTING A 16TH CENTURY JAPANESE DESIGN TO POTTSTOWN

An Eastern garden fits into an old mule depot along a canal towpath

by Fred S. Winter, M.D.

Welcome to Company Farm. The name comes from the time when this property was the principal year-round mule depot for the once busy Schuylkill Navigation Company Canal. The Farm, which dates from the early 19th century, is pleasantly located on a hillside plateau above the river. In fact, down through the years, the Farm managers and subsequent occupants have enjoyed one of the most unspoiled settings along the Schuylkill. Former residents of the Farm return from time to time just to renew the sights so dear to their pasts.

I know the subject at hand is our pride and joy, the Japanese Garden, but let me tell you about some things along the way.

For example, the stone arch leading into the huge mule corral supports a trellis for clematis, but it also seemed appropriate to have another trellis there hung with the many mule shoes unearthed on the farm. The corral is just about the size of a football field, and the eight-foot high stone wall surrounding it flanks either side of an 80 ft. x 50 ft. German-style barn. With a little imagination, you may see a few phantom mules grazing out there. It must have been a colorful sight in canal days. All of the "Girard" mules had fancy headgear. Stephen Girard got the canal on its feet by providing much needed financing in the early 19th century. So, the stretch of canal from Philadelphia to Reading was always called "the Girard."

Incidentally, the leeward side of the corral wall makes a wonderful shelter for our long cold frame bed. The cold frame is used for propagating hybrid rhododendron, azalea seedlings and species azaleas. We place little pebbles around the year-old seedlings to keep the tiny plants from heaving with frost. It works, and it isn't necessary to keep on the cold frame covers.

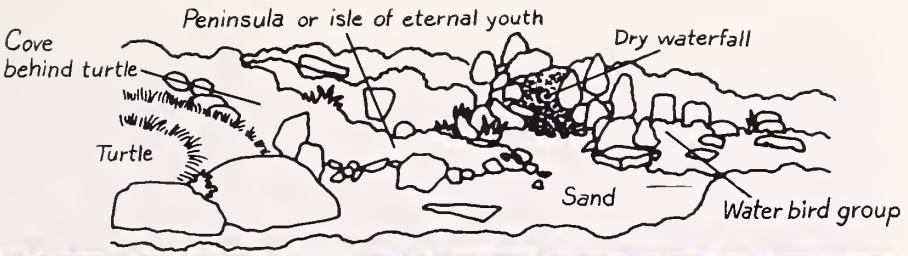
Let's go around the end of the wall to the Japanese Garden. The path we are taking is the lane down which the mules were led to the canal.

the japanese garden

Inspiration for the Japanese Garden came during a visit to Kyoto and the discovery of a lovely garden designed in the 16th century by the landscape architect, Kobori Enshu,* garden master and a Samurai of many talents. Not only was he a landscape architect but scholar, calligrapher, and master of the tea ceremony. His garden symbolizes the Samurai ideals of beauty, immortality, eternal youth, and longevity. These ideals are represented by the use of the Tsuru-Kame (turtle-crane) theme. The turtle, symbolic of longevity and immortality, frequently appears as a dominant mound in a garden of this type. Beauty as well is suggested by the water birds, which are portrayed in the garden as tall standing stones, or (wing) stones, while a large platform, foreground rock has been referred to as the water bird's (neck) stone.

continued

The Winter's Japanese garden under snow.
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An overview of the Japanese garden. (See pages 20 and 21 for enlarged details.)
▼



photos by Fred Winter



The stone arch at the Company Farm is the entrance to a mule corral. The Japanese garden is to the left of the corral.

TRANSPORTING A 16TH CENTURY JAPANESE DESIGN continued



photo by Fred Winter

Tortoise mound. The central projecting stone on the mound is the snout and the larger flanking stones are the front flippers. Clumps of festuca grass cling to the back of the old tortoise.

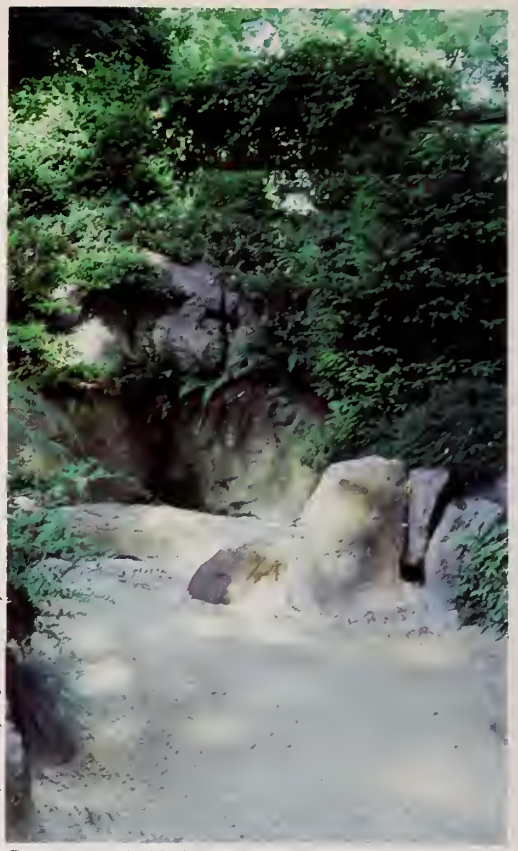


photo by Joy Dolhanczyk

Bay or grotto behind tortoise mound showing natural "cross" formation on rocks in background.

Kobori Enshu's garden comes across to me as a total landscape portrait using as it does the elements of Samurai symbolism perfectly blended in the shoin-zukuri style, which is said to be a dry landscape garden for contemplation. To me, it compares with the beauty of the two dimensional nature murals of the great museums but with an added dimension.

Fortunately, a paperback book devoted to Kyoto gardens was available in Kyoto city, and its centerfold featured the Garden of Konchi'in (sub-temple of Nanzen-ji) by Kobori Enshu, the garden we so much admired. When you've been so inspired by a thing of special beauty, the memory lingers. After returning to the Farm, the thought occurred to me that possibly the garden could be recreated on a perfectly plain bank behind our pool. The proportions were right and the stones, which are all important, were being found right on our place, mostly on a hollow where a pond was being dug.

the stones

So, with a rather detailed picture from *Gardens of Kyoto,* we set about trying to recreate the Garden of Konchi'in at old Company Farm. The three artistic components: the turtle for longevity, the cranes for beauty and longevity, and the central island or peninsula for eternal youth were roughly staked out. We used a bulldozer on the pond to gouge out and rearrange the contours. The final grooming of the two big bays was done by hand. Putting the stones up against the bank was much like laying stone up against the wood foundation of a house, but on a larger scale. You must be able to visualize the final result by allowing the correct depth for embedding the stones, some of which are 4 ft. x 5 ft. For placement of rocks, it helps to have a bulldozer operator who can "see through the bucket" so to speak. He also must have a sense of artistry. John Fahnstock, from Amish country, and I worked from the centerfold picture and were surprised when finished to see some resemblance to the original garden.

Although not entirely original, our garden bears one distinctive feature that definitely is. When one of the huge background rocks was eased into a conspicuous position, its surface seemed relatively smooth. As time passed, however, the rains washed the rock face and revealed two natural slash marks making the sign of a cross. Of course, this would not be meaningful to a Zen priest, but it serves our purpose well for it is the backdrop of Easter sunrise services.

Most of the foundation rocks are of Chester County red sandstone, and besides some water-worn interest, these provide a warm, sanguine color. These reddish stones gave us the head and flippers for the turtle and the symbolic parts of the cranes, the neck and wing stones.

The tortoise flanks one side of the garden and is the most dominant element in the landscape while the neck stone, a large platform rock, flanks the other side of the arrangement. One bay has the deep cut look of a seaside grotto and the other bay contains a dry rock waterfall. The waterfall stones are sized in such a way as to give the impression of distance with smaller stones placed toward the back.

Besides red sandstone, there is another type of a highly smooth and polished character, a quartzite variety, also found on our place. A few are quite large but most of them are the size of pebbles. I am told that these small stones were shipped to Philadelphia in colonial times to pave the first sidewalks and so were given the name "walker stones." The large variety are the artist's idea of abstract symbolism, having an oriental quality that provokes the imagination. They must be carefully placed so as not to suggest a sculpture garden but rather

*Examples of Kobori Enshu's work are available in *A Guide to the Gardens of Kyoto,* Marc Treib and Ron Herman, Shufunotomo Co., Ltd., Tokyo, 1980. Available at PHS Library.



Sand river and dry stone waterfall forming background for left side of garden. Water birds are vertical rocks on the right.

a natural happening.

After the skeleton and muscle of the garden were laid down, the overall effect was rather like an abandoned quarry except for Enshu's fine balance of forms. The addition of suitable plants transforms and joins together the background elements. The setting is in good scale and is particularly ideal for a dwarf conifer collection. Besides the dwarfs, we used various kinds of juniper ground covers (especially conferta), variegated *Pieris japonica,* box, holly, osmanthus, dwarf rhododendrons, azaleas, wildflowers, Christmas fern and festuca grass. Larger background conifers are balsam and douglas fir.

sand, an important element

Of all the elements of this garden, perhaps the most important is sand. Whether in a child's sandbox or in an oriental garden, sand is a natural ingredient that can amuse a child's fantasy or inspire abstract intellectual contemplation. Kobori Enshu binds together all of the body parts of his garden with a sea of sand as a foreground. When using sand in a garden, one must accept the responsibilty of being tidy. Of course, an unattended sandscape isn't all that bad looking, but when it is incorporated in *this* garden, it really deserves to be raked with a wave or water pattern. That is especially true when you want the garden to look its best.

the plants

It's surprising how quickly an aged, mature look came about with carefully selected plants. Although flamboyant contrasts are generally avoided in gardens of pure oriental style, an exception can be made if this is your own personal Eden. We've made exceptions by including satsuki azaleas and lepidote rhododendrons because these tend to be in scale. Later in the summer dwarf impatiens self-sow among the rocks, and as anyone knows, these are easy to tolerate. With some imagination, white satsukis placed high in the background behind the dry waterfall give the impression of snow on the distant mountains. Dwarf Alberta spruce can also be used to give the illusion of distance. These little trees in various sizes also climb up into the distance at one end of the garden. Keeping the plants within bounds by trimming and thinning out is of course necessary to maintain the feeling of a miniature bit of nature.

■ ■ ■

A Japanese garden of the early period on a Schuylkill Valley farm, you may ask. Well, why not. First, you will have the satisfaction of creating your own picture landscape. Gardeners are, after all, artists of a sort, composing their own living, changing pictures. Kobori Enshu must have had a great artist's talent and so, by trying to reproduce his masterpiece, the amateur can learn much.

Symbolism as well as balance of forms is so important for an interesting work of art, and this is particularly true in oriental gardening. But oriental symbolism is not too easily understood by the average westerner. We must do some homework to understand it. Apparently, there is a demand to become better acquainted with this art form for there are many excellent texts available, particularly in the Pennsylvania Horticultural Society library.

Understanding the underlying meanings of the turtle shell as a microcosmic universe, the isle of eternal life as a miniature heaven and graceful water birds adds to the mystery and full enjoyment of the garden.

For a new dimension in gardening, try looking toward the East.

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Fred Winter is active in the American Rhododenron Society and is president of the Valley Forge Chapter. A physician, Winter and his wife Barbara have served as volunteers for Care-Medico and the Presbyterian Overseas Missions, which made possible visits to gardens in some of the Far-Eastern countries.



photos by Marie Burns Judge

A view of the author's terrace from the door with the foliage begonia in the foreground. From left to right in the background are apple blossom petunias, *Coleus* 'Rose,' 'Pink Tauscendschon' begonias and *Impatiens* 'Rose.'

TREE HOUSE TERRACE:

A Gardening World in a Small Condominium

by Marie Burns Judge

We named our place the Tree House because all of our windows face directly into property line trees. The tiny terrace outside the sliding glass door of our living room, visually extends our living space. It is part of a small condominium located on a busy suburban avenue.

Each of the seasons on the Tree House terrace has its own special beauty: summer, when the containers are filled, and the plants grow and bloom; autumn, when we lift out tired annuals and replace them with mums; winter, when many birds and a few squirrels come to visit flower pots now filled with seeds, and snow transforms every object; spring, when the maple tree comes alive, pansies are set out, and we dream of our summer garden again.

Our former house and its adjacenmt cutting garden (approximately 10 ft. x 20 ft.) contained many varieties of Star roses, i.e., 'Chicago Peach,' 'Mister Lincoln,' 'Chrysler Imperial,' 'Angel Face' and 'Camelot.'

roses for our first terrace garden

After we sold our house and moved to an apartment we had to have roses for cutting in our first terrace garden (approximately 8 ft. x 15 ft.). I visited Albrecht's Nurseries in Narberth to see if roses could be grown in containers. Jay Albrecht suggested the Star Roses shrub rose 'Carefree Beauty.' It is a small, delicately scented pink rose, more reminiscent of a wild rose than a tame one and lasts for several days after cutting. It grew very well in containers, setting lovely buds, which I usually cut as soon as they began to open. I soon found that it was much easier to pull a few weeds from two pots than it had been to weed a garden containing 20 some bushes.

For the first terrace garden, we brought two stone benches, a stone bird bath and two shallow stone pots from our former garden. The shallow pots held geraniums. We added two deep pots for the roses and another for a miniature boxwood bush because we missed that scent. There was soon another pot for the base of the bird bath because the basin was too difficult to keep clean in its new second floor setting. The new pot held annuals and the basin held hen-and-chickens. When aphids appeared on the roses, I realized that I had forgotten to plant marigolds. A long stone trough was added holding only miniature marigolds. It was goodbye aphids. A small pot was added to hold a foliage begonia that I had raised from a leaf that a friend tied onto a gift package as part of a nosegay. Our garden flourished.

The first year we tried wintering over for the roses but were unsuccessful. In subsequent years, at the end of summer when the roses bloomed for the last time, we carefully lifted the bushes from the pots, their roots wrapped in large plastic trash bags and gave them to a friend for her garden.

When we moved from the apartment to our Tree House condominium, I was ready to repeat that same terrace garden. Our new terrace was small (5 ft. x 10 ft.), so we had to get rid of the two stone benches. I added instead two more shallow pots for geraniums.

The first summer here, we were so busy that we really didn't give much attention to our garden. But the second summer saw our new garden thrive.

A pumpkin and chrysanthemums for autumn even before the maple tree has turned golden yellow. ▶



How easy terrace gardening was. A snap!

Then came the third summer with its cold weather and rain. The roses and geraniums rotted in the pots. I couldn't believe it. What had happened? It was really quite simple. Our beloved maple tree, the backdrop of our Tree House terrace, had grown. So had every other tree along the property line. What to do?

I began to recall the shady areas around our former house. What had worked? Impatiens. Begonias. Coleus.

A trip to Gaudio's yielded garden packs of tiny plants. We spent two hours on the terrace potting and fertilizing (with Plantabs). We had an instant garden, one that is visually delightful. The monochromatic color scheme, with varying shades of pink, is partially responsible for its attractiveness. Differences in shape, texture and plant sizes play a role as well. Several years of trial and error have finally paid off.

I walk through my garden every morning to water and deadhead. Remembering the maxim, "The higher the drier," I check the pots in the late afternoon or early evening to see if they need a second watering during a hot, dry spell. The sun's daily journey encourages a symmetrical arrangement of our containers. It arrives early in the morning, takes time off for a long lunch and returns for a short visit in the early afternoon. We regret the loss of roses and geraniums in our terrace garden because we lack the sun but feel we now have plants more suitable for our present growing conditions.

The pots where the roses formerly grew now contain *Impatiens* 'Rose' (a hybrid that grows in semi or full sun); the long stone trough contains *Coleus* 'Rose' (a hybrid that grows in semi-shade). The four shallow pots contain *Begonia* 'Pink Tausendschon.' My petunias around the bird bath were decimated by a critter. Next year I won't plant petunias in that pot. Pehaps ivy geraniums would do better.

Ah, the dream of next year. Isn't that one of the pleasures of gardening. Dreaming. And planning.

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Marie Judge's work as a Park House Guide with The Philadelphia Museum of Art led her to become a garden historian. She has presented slide lectures for historical societies, garden clubs and women's clubs. She has given courses for The Continuum, Main Line Night School and Cheltenham Township Adult School.



Detail of *Impatiens* 'Rose.'



photos by George Fernandez

Nellie Robinson, the block captain of 2000 W. Boston Street, looks out onto a lush green streetscape. The sidewalk appears to be disappearing under the encroaching flowers, trees, and shrubbery. Boston Street is one of the eight blocks that make up the West Hagert Greene Countrie Towne.

In August 1983 there was much hoopla and celebration in the triangularly-shaped community bordered by York and 20th Streets and Glenwood Avenue. The media arrived and interviewed neighborhood residents, politicians made speeches, and visitors flocked to take in the midsummer display of superb innercity horticulture. Thirty-odd years of persistent curbside gardening practices were being celebrated as the West Hagert Street community became the first Greene Countrie Towne of the Pennsylvania Horticultural Society's Philadelphia Green program. Today, West Hagert Greene Countrie Towne looks better than ever: the neighborhood boasts thriving horticulture everywhere you look, including three sitting gardens, street trees, curbside planters with evergreens and every kind of container-grown flower combination.

CLEAN & GREEN:

West Hagert Street Greene Countrie Towne – eight blocks of thriving gardens

by Hal Rosner

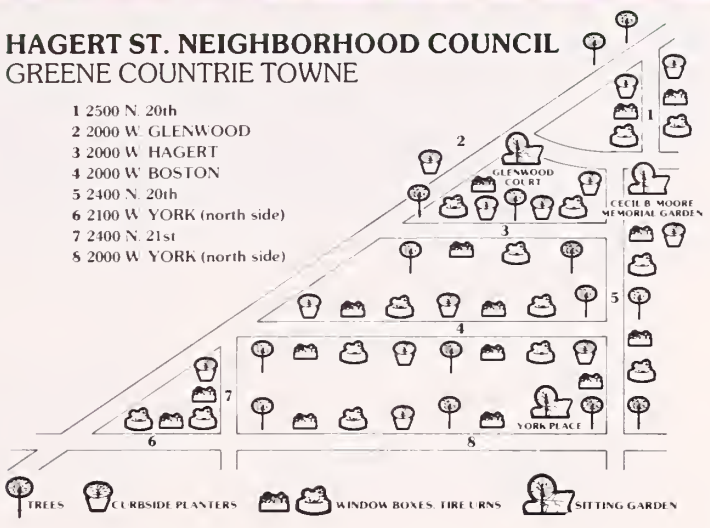


No, this isn't a Flower Show exhibit. Clarence (white shirt, seated on bench) and Donna Thorpe (standing) are visiting with Philadelphia Green's Jeff Myers (glasses, in foreground) in the Cecil B. Moore Memorial Sitting Garden. Located at 2463 N. 20th Street, it boasts an amazing variety of plants including smokebush, lily turf, climbing rose, and flowering dogwood.



Dorsha Mason lives on the 2000 block of West Hagert Street, the "heart" of the Greene Countrie Towne. She moved there in 1943 from the Frankford area of the city. In 1953 her neighbors began planting window boxes as charter members of the Neighborhood Garden Association, started by Louise Bush-Brown. Bush-Brown drew together many of the garden clubs in the Delaware Valley to work with people in city neighborhoods, helping community groups plant flowers in window boxes and tire urns. In 1978 NGA turned its operation over to The Pennsyvlvania Horticultural Society for incorporation into its community gar-

continued





The pride of the West Hagert Greene Countrie Towne. "Glenwood Court" includes the obvious: hundreds of bricks, as well as colonial lighting, ornate iron work, and well-tended horticulture. It's unbelievable that this garden was constructed through the volunteer efforts of a handful of neighborhood residents from 2000 W. Glenwood Avenue.



Snapdragons and an evergreen shrub growing in a curbside pot. A bright and fine example of the gardening skills and neighborhood pride found in North Philadelphia's Greene Countrie Towne.



Geraldine Cade, the block captain of 2000 W. Glenwood, tends plants in her backyard collection, including rubber plants out for some summer rain. ▶

dening program, Philadelphia Green. It was that same year that Philadelphia Green first became involved with the people of West Hagert Street community. In fact all eight blocks that eventually became members of the Hagert Street Neighborhood Council had worked with NGA on gardening projects on their streets. These experiences, stretching over three decades are evident in the fabulous greenery found on the member blocks today. On each block, at house after house, some sort of gardening effort is confidently displayed. An abundance of annuals in a full range of colors can be found in every sort of container or sitting garden flower bed. Evergreen shrubs grow in large concrete planters or in tried and true tire urns. They provide a constant green year-round reminder that these streets are special.

The horticultural amenities on these streets are special in that they represent many hard-fought battles for just plain survival. In many ways, Hagert Street Greene Countrie Towne represents a sort of green oasis, an emerald in the rough. This is not to discount the greening efforts of more than 250 blocks in North Philadelphia. What's special is that the people of these eight blocks came together to confront the basic issues of neighborhood decline, housing and crime, and in the end came up clean and green.

how you live where you live

The West Hagert Street Neighborhood Council is a volunteer organization that has been in existence for more than 25 years. In its beginnings the organization served a racially mixed neighborhood, and now services a predominantly Black area. They have an often used motto, "It is not where you live, but how you live where you live." It is something that a visitor hears over and over. This wisdom prevails not only in the greening efforts, but for street-cleaning, town watch, shopping and transportation services for senior citizens, after school tutoring, youth employment, and bible school. These activities reflect the spirit and cohesiveness of a community whose resourcefulness has rewarded its citizens with a neighborhood that works.

The Council faced their first issue in 1976 when the City of Philadelphia razed the house at 2026 Glenwood Avenue. They hauled away some bricks and timbers, and left behind some bricks, rubble and clay fill. The West Hagert Street neighbors had intended to convince the City that the house at 2026 Glenwood Avenue was sound and quite suitable for occupancy but when Geraldine Cade, the block captain of Glenwood Avenue, arrived home from work one day she found work crews in the final stage of demolishing the structure. The perfect row of homes now had a gaping space, unsightly, and worse, the first symptom of block decline. Neighbors didn't waste any time erecting an 8-ft. high wall of plywood as a cosmetic measure. Perhaps there would be a use for the now vacant lot someday, but for the time being the 8-ft. high painted wall would have to suffice.

The Council got serious about their collective gardening efforts in 1976. Dorsha's block had won many awards for its window boxes and tire urns. Now it was time for the other blocks to try their hand at winning some recognition from contests sponsored by the Philadelphia More Beautiful Committee and the Neighborhood Garden Association. Dorsha has pictures of children posing in front of freshly planted window boxes, who today are grown and have children of their own. Those were the early days, she says, of "simple" gardening. Big red roses grew out of an old lard can, or window boxes were fashioned from donated lumber. At one point, neighbors wanted something to help draw attention to grecian urns that had been planted with yews. Their solution was to turn cinder blocks on their sides and plant them with petunias. On many streets the urns and cinder blocks are still in place after some 20 years.

One of Council's first extensive landscaping efforts, a departure from window boxes and urns, was to assemble a sidewalk garden known as the Kennedy-King Memorial. Arranged in linear fashion so as to feature each plant, the collection of container-grown plants includes a Colorado blue spruce, rose of sharon, and dwarf chamaecyparis. Set amidst all the plants is a handsome bronze plaque that commmemorates the dedication of the neighborhood as a Greene Countrie Towne.

WHAT IS A GREENE COUNTRIE TOWNE?

The Pennsylvania Horticultural Society's Philadelphia Green program works with city blocks to assist them with their greening efforts. Often the gardeners' zeal and dedication spread to other blocks in the neighborhood. This strong community interest in city gardening, extending over many blocks, has so far helped create two Greene Countrie Townes. The first Towne, West Hagert Street, was dedicated in August 1982 and covers an eight block area. South Philadelphia's Point Breeze Greene Countrie Towne was dedicated in August 1983 and covers an amazing 70 block area. More Greene Countrie Townes are planned for the future. The revitalization of William Penn's dream for a city seems to be catching on.

three neighborhood sitting gardens

A proud community leader boasts, "We have three vacant lots in the Hagert Street neighborhood, and each one has a garden on it." Most city sitting gardens have a story concerning their development – the politics of acquisition, site problems, structure conditions, and volunteer motivation. Phildelphia Green provides most of the construction materials for sitting gardens, and may provide professional assistance to aid in landscape construction. But it is up to the community to provide the labor to clean and prepare the lot for construction and to plant and care for the garden.

The Cecil B. Moore Memorial Garden, at 2463 N. 20th St., is named after the late North Philadelphia City Councilman. Its chief gardeners are the husband and wife team of Donna and Clarence Thorpe. Driving or walking down 20th Street in mid-summer, one is liable to do a double-take at discovering the color and brilliance of this corner garden spot. Each year neighbors plant the garden with a wide variety of marigolds, petunias, and geraniums. Roses grow on an arbor, a dogwood thrives, and a well-tended pussy willow has a special story, as Donna Thorpe will tell you. Two years ago when the garden was growing well, the city announced plans to work on the basement in the building next door. All kinds of memos and telephone calls took place between agencies. Finally the city agreed to cover the cost of

continued

restoration, since it was inevitable that much of the garden would be destroyed by excavation and heavy machinery.

Philadelphia Green assisted in moving some plants to a holding area, then the city went to work. Donna and her neighbors watched sadly as the nice green spot returned to mud and clay.

When the work was done, a landscape contractor was secured to begin the reconstruction. For the most part the garden was redone from one end to another. The pussy-willow, returned to the garden as a couple of pencil-sized sticks. Determined to return it to its former state, Donna began a careful therapy program. After two years the plant is full and round and completely recovered.

Glenwood Court now stands on the site of the ill-fated house at 2026 Glenwood. It is a great example of neighbors pulling together for the common purpose of neighborhood beautification. Philadelphia Green assisted with the design, provided basic construction materials such as sand and brick, a wide range of plants, and some rather fancy extras such as wrought iron gate and trim. But the long, long hours of laying brick after brick came from volunteers. Some 5,000 bricks were elegantly placed by a crew of several people led by the extraordinary mason, A. C. Gay, who lives next door to the garden. Quite often they worked until 2 or 3 o'clock in the morning. The final product speaks for itself. Its design and construction will endure for many years.

philadelphia green's role

Philadelphia Green had begun working with the neighbors of the Hagert Street area in 1978. At that time the eight membership blocks had already been involved in one way or another with container flower gardening. The gardening tradition was already strong and horticultural instincts were quite sharp. Philadelphia Green again provided flowers and boxes wherever it was necessary. The block's continuous involvement with city gardening, along with their steady reaping of awards from Philadelphia More Beautiful and Neighborhood Garden Association, convinced Philadelphia Green's director Blaine Bonham that this neighborhood had Greene Countrie Towne potential. The idea of concentrating greening projects over a series of blocks as a means of resurrecting William Penn's hopes for Philadelphia seemed a logical extension of Philadelphia Green's outreach efforts.

But the long, long hours of laying brick after brick came from volunteers. Some 5,000 bricks were elegantly placed by a crew of several peple led by a rather extraordinary mason, A. C. Gray, who lives next door to the garden. Quite often the work went on till two or three in the morning.

Philadelphia Green staff surveyed the eight-block area in an initial fact-finding step to determine further horticultural needs. They found that each block had its own characteristics and needs. The 2000 W. York Street block was long, with steady traffic flow. Boston Street was even longer. The 2400 N. 20th Street block also had steady traffic and tall homes with many apartments. A series of community meetings were held with the participating blocks further assessing gardening needs.

To get the greening gears moving, Philadelphia Green decided to again sponsor all blocks with flowers and window boxes. This plan assured that all of the 233 families would have some flowers growing at their doorsteps. Philadelphia Green landscape designer Patricia Schrieber began to determine where concrete planters might serve as worthwhile additions to a block's overall landscape scheme. On selected streets, the planters were placed at intervals equivalent to three or four houses. Neighbors then planted them with evergreen shrubs such as 'Grey Owl' or 'Old Gold' junipers, and with a ring of snapdragons or petunias cascading over the sides. The addition of planters had a striking effect on those longer blocks – like Boston or York Streets – where the regularly spaced evergreens provided green continuity.

Horticulture doesn't stop at curbside. In many backyards, gardens are tended as well. Constance Austin grows a variety of rose-of-sharon, as well as a fruit bearing peach tree that she grew from seed. Hanging baskets abound in Clifford Chappell's side yard. Geraldine Cade maintains a vast collection of plants as well. Dorsha Mason has what she refers to as the "hospital garden" in her backyard, plant rejects that she has received and nursed to health. The yard is now a perfect spot for morning coffee.

Philadelphia is a big city, and many blocks might benefit from greening activities. The West Hagert Street Greene Countrie Towne is eight blocks. At present Philadelphia Green city-wide has worked with more than 700 blocks. This past spring a new Greene Countrie Towne was dedicated in South Philadelphia's Point Breeze neighborhood; this time 72 blocks participated. Greening a city takes time, one house or one block at a time. A neighborhood with window boxes and a sitting park looks pretty attractive to the people who live several blocks away and might just be passing through. And it's contagious. That's how the city gets greened – one block at a time.

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Hal Rosner is district coordinator for Philadelphia Green. Rosner has a B.A. in environmental studies from Northeastern Illinois University, and an A.A.S. in ornamental horticulture from Kishwaukee College in Illinois.

A TORNADO HITS BOWMAN'S HILL:
A Woodland is Restored

by Oliver Stark

How do you cope with more than 200 trees uprooted into a tangled mess and another 75 with tops twisted and torn? What do you do when a special area is devastated by a sudden spring storm?



photos courtesy of Bowman's Hill Wildflower Preserve Assn., Inc.

100-year-old sugar maple and 150-year-old red oak are downed near 20-ft. tall rosebay rhododendron.

On March 21, 1983 at 2:30 p.m. a tornado touched down and jumped along a narrow 100-yard path for one-half mile from the western end of Bowman's Hill to Pennsylvania Route 32. In its 10-mile march across Bucks County the tornado had curved to the east until the mass of Bowman's Hill caused a northward shift into the Park. It blew through the heart of Bowman's Hill Wildflower Preserve in Washington Crossing Historic Park. Its aftermath changed long-shaded areas to sunny areas. Whole stands of spring beauty, rue anemone, trout lily and other sprouting forest floor plants were hoisted 10 feet into the air on the upended tree root balls.

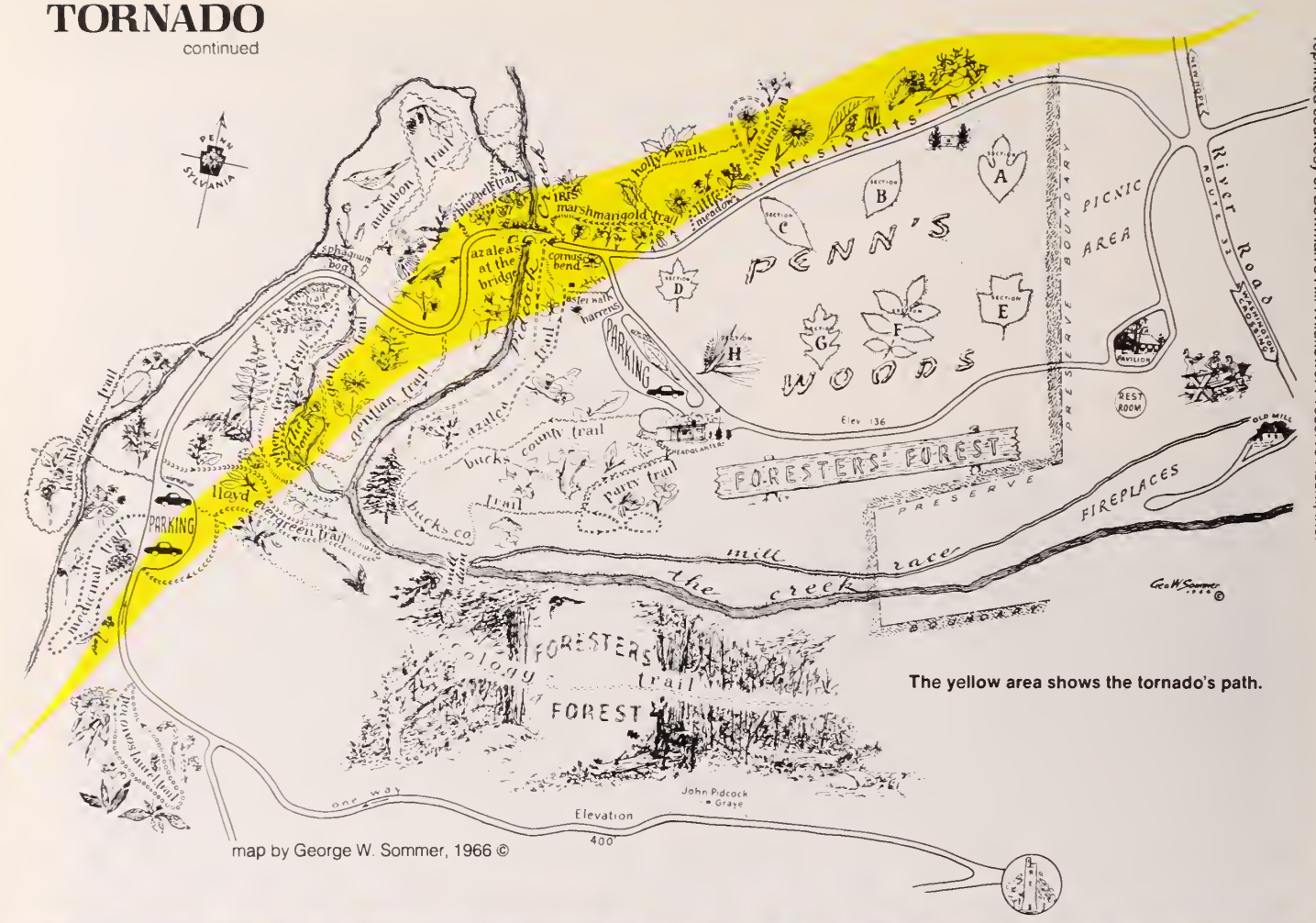
We were numbed. Cries for immediate help went to the Park Administrator, Dan Reibel, to the Washington Crossing Park Commission, to our central administration agency – the Pennsylvania Historical and Museum Commission, to Governor Thornburgh and to area legislators. Park Maintenance went to work the same day, joined shortly by help from Roosevelt State Park in the Pennsylvania Department of Environmental Resources.

When we recovered from shock, we sent an S.O.S. to our membership and friends, to other public officials, to Delaware Valley businesses in horticulture and to concerned foundations. TV and the print media made our plight known to the general public.

The response was gratifying. In 10 days Washington Crossing Park and Roosevelt Park cleared the Preserve road and the major blockage in Pidcock Creek. Small groups of firewood cutters attacked the masses of evergreens. Our own knowledgeable volunteers carried away brush where the uninitiated could not walk without damage to the early growth. By the third week in April an arborist arranged for by Pennsylvania

continued

TORNADO
continued



The yellow area shows the tornado's path.

reprinted courtesy of Bowman's Hill Wildflower Preserve Assn., Inc.



Volunteers clearing off fallen white spruce



Volunteers saw firewood from fallen american beech limbs.



Summer work crew hired through AID from the 1983 Jobs Bill. Most of the debris is gone, and the ground is being made ready to recondition a path.

Historical and Museum Commission removed dangerous hangers and leaners and trails were opened. By May 5, 10 large sugar maples (4 to 5 in. in diameter) and a large sweet gum (almost 8 in. in diameter) were in place to start high shade for the now sunny groups of smooth azalea and pinxterbloom. Major trail areas were cleaned of light debris by early June.

Near the Route 32 end of the tornado path four acres of trees were leveled, and we cleared the ground completely. Here was a challenge and an opportunity. The Park boundary screen planting had disappeared and a collection of Pennsylvania native trees and shrubs (spared from the storm) was isolated with no connection to its surroundings. We replanted rosebay rhododenrons, as well as white pine in the better soil and red in the poorer for future screening and realigned a seldom used trail to circle the new sunny place and to border the collection. We enlarged the collection with drifts of shrubs to complement the new trail and the old plantings. To meet a long-felt need, we made the trail surface of compacted fine gravel so that persons in wheel chairs can enjoy the areas with ease.

By mid-May our appeals for support had brought in $26,000 in cash and the equivalent of $29,000 in all kinds of service. In July an additional $16,337 of federal funds from the 1983 Jobs Act covered more cleanup, construction of the realigned trail and planting of 165 trees and shrubs. Counting all cash outlays and indirect costs through September 30, nearly $107,000 has been spent on recovery. Ninety-eight percent of the cleanup is finished. We still have two areas to replant, mulch to spread and large shrubs to install for temporary shade.

We wish we had prepared an emergency plan for just such a contingency. We wish we had annually reviewed established emergency procedures for material purchase and service contract awards. We wish the tornado hadn't struck.

We wish we had prepared an emergency plan for just such a contingency. We wish we had annually reviewed established emergency procedures for material purchase and service contract awards. We wish the tornado hadn't struck. The only happy note in the midst of all the destruction and discouragement has been the great concern for natural beauty shown by our fellows and neighbors, and their willingness to support the Preserve. Without it we would still be stuck in a morass of fallen trees.

More Coming about the Tornado's Effect on Bowman's Hill Wildflower Preserve

Oliver Stark explains here the cost of the tornado's damage in terms of dollars and human effort. In the March issue, Bill Olson, naturalist, will explain the tornado's effect on the Preserve's natural systems.

●

Oliver Stark is director of Bowman's Hill Wildflower Preserve. He has written for *Bulletin of the American Association of Botanic Gardens and Arboreta, Horticulture,* and *American Horticulturist.* He also contributed to *Ways with Wildflowers,* 1983 publication of the Bowman's Hill Wildflower Preserve Association, Inc.



photo by John Leonard

Seedling shelves in the warm room. Seedlings do exceptionally well under lights.

GROWING ORCHIDS IN THE

I started growing orchids in Cleveland, Ohio in 1975 along with a collection of house plants I had been growing under lights. Since that time I've moved around the country and have also grown orchids in a greenhouse in North Carolina and outdoors under a lath house in Southern California. Based on my various experiences, some of them disasters, I've chosen to grow orchids in the basement where I can control the environment and not worry about scorching summers, freezing winters, cloudy days and a host of evils associated with greenhouse growing.

My growing space has expanded into two rooms that I call environmental chambers. These chambers are made from two-by-fours covered with polyethylene on the outside and opaque white plastic or aluminum foil on the inside. The chambers are totally enclosed and each one has a door. One chamber, cool to intermediate, and one, intermediate to warm, contain about 90 sq. ft. of bench growing space and about 70 sq. ft. of screen wall growing space, i.e., hardware cloth on the sidewalls for hanging plants on cork or tree fern slabs greatly increases the available growing space. Light fall-off on the walls has not been a problem as the screen walls are directly under one side of a bank of lights and are not more than 3 ft. in height. I am currently growing 400 mature plants and 75 seedlings, including 40 genera and 150 species in the two rooms.

"The only things that kill orchids are excesses of anything and experts' advice."

Benches are made from two-by-fours covered with hardware cloth. These are 3 ft. high, 28 in. deep and either 5 ft. or 9 ft. long. Four tube fluorescent fixtures, 4 ft. long, are hung approximately 2 ft. above the benches with wire. The fixtures can be moved up or down to suit the size of the plants; my plants are 12 in. to 18 in. away from the light. Beneath the benches are 5 in. deep galvanized trays with spigots to drain the water when the trays fill.

Successful orchid culture requires attention to three basics – light, air movement and humidity. My methods for dealing with these requirements, as well as other orchid-growing hints, are outlined here.

light

I use a four tube bank of 40-watt fluorescent tubes covering 9 sq. ft. of growing space. The bank consists of two cold white tubes, one warm white tube and one wide spectrum Gro-Lite. The wide spectrum Gro-Lite is added to each bank to achieve the far red light spectrum that some orchids require in order to bloom. The tubes are changed once a year, and I have found it handy to mark in china pencil on the fixtures the dates the tubes are changed. The cost of each bank of lights turned on 15 hours a day is approximately $6.50 a month.

air movement

A small computer "Muffin" fan,* 4 in. to 6 in. size, provides a constant air motion that helps prevent rot diseases and stagnation. The fan is set to bounce air movement off a side wall, which helps to create a gentle swirling motion by the time the air hits the plants.

humidity

Water held in the galvanized trays beneath the benches provides some, but not enough, humidity. Misting the

*Available at electronic distribution outlets such as the Radio Shack chain.



photo by Susan Rosenberg

This *Dendrobium bellatulum* won a first in its class at the Philadelphia Flower Show. ◀

Ludisa discolor 'Dawsoniana.' Specimen plant grown under lights, five years. ▼



photo by John Leonard

BASEMENT

by John Leonard

plants once a day helps, but to maintain an averge humidity of 55% I've added a child's cold-water humidifier. It runs 10 hours a day in the winter and three to six hours a day in the summer and has solved my humidity problems. The humidifier, placed three feet in front of the fan, provides the plants with a mild, moisture-laden breeze. The four-quart humidifier, running 10 hours a day half open, is filled every other day. It costs about $4.00 a month to run the humidifier and one fan.

The lights, fan and humidifier are all connected to timers and once set turn on and off automatically.

temperature

Many orchids require a 10° to 15° temperature drop from day to night in order to flower. Each four-tube fluorescent fixture, four feet long, can produce 400 to 450 BTU an hour. When the timers turn the lights off at night, the temperature drop of 15° is perfect for warm and intermediate growing orchids. My intermediate temperatures are 72° to 75° for daytime and 58° to 60° for nighttime. Warm temperatures are 80° to 85° daytime and 62° to 65° nighttime. At these temperatures, cool-growing orchids have been difficult for me. I am, however, in the process of building a new environmental chamber that will maintain 68° to 70° in the daytime and 48° to 50° nights.

adaptability

It often takes orchids a year or two to adapt to growing and blooming under lights. I sometimes consult four or five different references to identify the cultural requirements for a specific plant. With light and temperature controlled environmental chambers, containing many microclimates, I can then match the actual growing conditions to the cultural requirements of the plants.

Orchids will adapt to various environments as long as they are not exposed to excesses in temperature or watering; and if you can come close to their required environment, they will grow and flower.

There is an orchid dealer on the West Coast who is fond of saying, "The only things that kill orchids are excesses of anything and experts' advice."

schedule

I keep a "Year at a Glance" calendar on the door to the environmental room to record frequency of watering and pest controls. I water every three days in winter and every four to five days in summer.

For a fungicide I spray Truban and Benomyl powder mixed together at one-half recommended strength with a surfactant on the foliage once every six weeks. Occasionally I change off and use Physan - 20, also with a surfactant (e.g., a tablespoon of liquid ivory soap to a gallon of water).

I use an insecticide once every other month. Insecticides can be dangerous in an enclosed space, so I recommend extreme caution and careful attention to directions on the label.

I usually mist the plants 20 minutes to an hour before spraying with insecticide. I do it because I feel it slows down the plant's absorption of the insecticide. Recently I have been using a mixture of one-half recommended strength Volck and one-half recommended strength Malathion mixed together and sprayed on the foliage. Occasionally I change to one-half strength Sevin with surfactant.

continued

You should never spray an insecticide with surfactant into your potting mix as this tends to break the potting mix down very rapidly.

Maintaining a good plant care schedule on my calendar helps me to create and hold a constant environment for growing orchids. In addition, I list future exhibitions and shows. This enables me to select and give plants longer periods of light to accelerate flowering or put into cool, low-light areas to slow growth or hold flowers longer.

potting mixes

Potting is a frequently overlooked aspect of succesful orchid culture. I use a self-fertilizing mix for the *Paphiopedilum*. This mix is based on the Rands Mix and contains fir bark, charcoal and a slow release fertilizer (Electra), Hoof and Horn Bone Meal, dolomite lime, and a handful of other items. I gave up making it myself a long time ago. Now I buy it premixed from Waldor Orchids in Linwood, New Jersey. As this mix breaks down it loses its ability to fertilize, so I repot once a year. *Phalaenopsis* are potted in shredded tree fern with redwood chips and repotted every two years. I use fir bark mix for *Cattleya* and *Epidendrum*.

Again, adaptability plays a role. Orchid roots adapt to their potting mix. When you radically change the potting mix, it may take a year or two for the plant to recover. Once you find a good mix for a plant, stick with it.

■ ■ ■

why choose a basement for orchids?

When a greenhouse grower asks me why I prefer to grow orchids in the basement under lights, I like to tell them about a *Paphiopedilum* species not long out of the jungle that I bought in 1976. The paph languished in the greenhouse and almost expired outside in Southern California. When we finally moved back to Philadelphia in 1979 I put the paph under lights in the basement and nursed it along. It took a First in the *Paph* species in the 1982 Philadelphia Flower Show and was awarded an American Orchid Society Award of Merit in the 1983 Show. (The plant is called *Paphiopedilum hirsutissimum* 'Carolyn Leonard' after my daughter.) This kind of success has repeated itself many times as I receive plants from various greenhouses and dealers, and I find myself often able to improve the growth and flowering habits of difficult to grow plants in the controlled environment unavailable to many greenhouse growers.

Nothing here is an ironclad rule to be followed in order to grow orchids under lights. Techniques with lights are as varied as greenhouse techniques and seldom can you get two growers to agree on the requirements for growing.

Only one thing is a certainty. There are no cloudy days under lights.

Orchids to Grow Under Lights

Paphiopedilum spp. and hybrids*
Phalaenopsis hybrids*
*Phalaenopsis cornu-cervi**
Phalaenopsis mannii
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Laelia pumila
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Brassia spp.
Neofinetia falcata
Epidendrum spp. and hybrids*
Cattleya hybrids
Cattleya luteola
Dendrobium jenkinsii
Dendrobium phalaenopsis

*The author particularly recommends for beginners.

●

John Leonard is a member of PHS, American Orchid Society, Cymbidium Society of America, Delaware Orchid Society, Greater Philadelphia Orchid Society and a director of the Southeastern Pennsylvania Orchid Society.

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Jean Byrne, Editor

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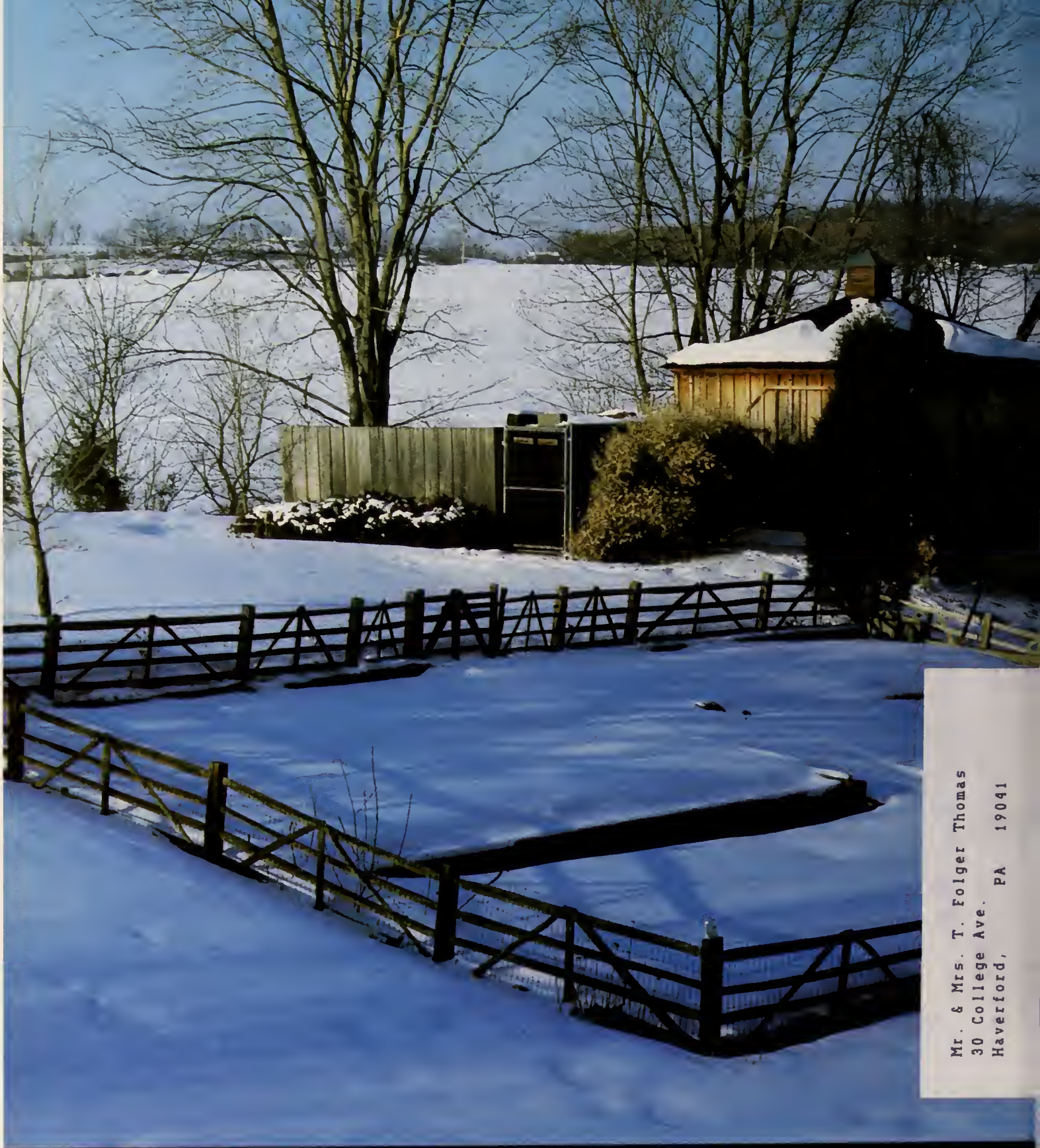
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Winter tranquility. A time for the garden and gardeners to rest. See page 4.



Urban Art on the Garden Wall.
See page 22.

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Front cover: Children from the Miller School at Norris Square worked on garden wall murals with children from Germantown Friends and St. Boniface's schools. For the story on garden wall art see page 22.
photo by Natalie Kempner

Back cover: See page 4.
photo by John Swan

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Correction: Meeting dates for Del-Penn Gardeners

Susan L. Hengel asked us to tell readers that the correct meeting dates for Del-Penn Gardeners are the third Wednesday of each month, except July and August when there is no meeting. Meetings are at 7:30 pm at Buckley's Tavern, Centreville, Delaware. The information was incorrectly listed in the article "Life and Death of the Estate Greenhouses" in the November/December issue of *Green Scene*.

WHEN IS A BACK WORSE THAN A BARK?
When it's wrong, that's when. One of our sharp-eyed readers picked up the typo which should have read **paperbark** maple on page 17 of the January issue.

The Editor





HOW WALL ART, HIGHWAYS AND COMPUTERS FIT INTO HORTICULTURE

There's more than meets the eye

"She's such a good horticulturist, she could stand in a dark room and tell you what's going on with the plants there." That's a tribute a colleague once paid a co-worker, and I've always thought it was the ultimate in honoring a grower's sensitivity.

As I was putting the final editing touches in this issue, I thought of that comment, but with a twist. I was thinking about how tangential so many things seem to horticulture, but how really imbedded they are. That's true of three of the stories here: stories about wall art, highways and computers. The wall art was done by the children of the West Kensington area in Philadelphia. Natalie Kempner describes movingly how the children there began making the first connection between seeds and food and flowers and moved to wall art in the gardens, echoing our earliest ancestor's response to the world around them. Lucy Jones shifts our often unseeing eyes to another area, the highway and median strips. When plants are there, they make a big difference in our environment.

And finally, Jane Pepper's story about the role of the computer in the orchard. Jane lets us know that while green doesn't sprout directly out of the computer, computers are becoming an important part of food preservation, measuring temperatures, and mechanization, when preparing food for the market. Computers are here to stay and perhaps they will ultimately help reduce food costs to the consumer.

In the world of horticulture at large, none of us can close our eyes and feel what is going on. Surely we would go on sensory overload, but it's exhilarating to know that growing plants, the *sine qua non* of our existence, touches our survival in more ways than one, engaging more senses than the eye. And so we enjoy the complexity of horticulture and its capability to draw us into a larger world.

Jean Byrne, *Editor*



photos by John P. Swan

AN UNDERGROUND GUIDE TO GROWING HARVEST SHOW QUALITY ONIONS

by John P. Swan

The humble onion is probably one of the world's oldest cultivated vegetables. A member of the Amaryllis family, there are about 400 species of this bulbous herb ranging from ornamentals, the wild garlic of lawn infamy, to the common globe onion, *Allium cepa*.

Onions are one of the easiest vegetables to grow. To enjoy a bumper crop of juicy, firm onions with lustrous papery skins, however, the gardener must pay close attention to an onion's personal requirements.

Whether growing onions from seed, sets, or transplants our experience has shown that following a few key principles greatly improves both yield and storage qualities.

plant early

The onion's nature is to grow tops in cool weather. As summer temperatures rise along with longer hours of daylight, the onion's internal time clock triggers a shift to bulb development. Most northern varieties grown in the Philadelphia area require 14 to 16 hours of daylight for bulb growth. This peaks in June and July so it is important that the plant has achieved maximum top growth by this time.

Our onions take from 100 to 125 days to harvest. We plant them outside in March, as soon as we can work the soil. Local lore says they should be in the ground around St. Patrick's Day, March 17. Then the "onion snow" that usually follows can work its magic, too.

enrich soil

Onions are shallow rooted, but have big appetites. They thrive in rich, well-drained soil that is friable enough to be worked early. We use liberal quantities of mushroom soil, but manure or compost are both excellent.

Soil pH should be 6.0 to 6.5. Onions do not like soil that is too acid. At planting time we sprinkle a heavy dusting of wood ashes from our wood stove to raise the pH and provide extra potash and phosphorous that onions love.

When planting, we work in 5-10-10 along the rows and side dress again in June for bulb growth.

Our rows are 25 ft. long. We plant the onions very close together. Rows are arranged in pairs 5 in. apart with a 10-in. space between each pair of rows, so we can walk between the pairs to cultivate and weed.

First we make a trench using the sharp corner of a hoe. The sets and young plants are placed 4 in. apart and covered to a depth of at least one inch. Trenching allows us to control spacing of parallel rows and ensures that onions are evenly spaced before covering.

onions like to drink. water.

Adequate soil moisture is essential for fast and complete growth during all stages of development. Protracted dryness results in small bulbs, reduced yield, and possibly too much pungency.

Mulching between rows helps conserve moisture and reduce weeds, but be sure to keep away from the bulb. We

continued



Left. Vigorous top growth of Stuttgarter onions in May. Lettuce: Burpee Fordhook.
Above: Harvest time approaches as onion tops are allowed to fall over naturally in July.

do not mulch only because our onions are planted in closely spaced rows for maximum production in the least possible space.

When the onions mature and tops start to fall over, then is the time to withhold water.

weeds and onions don't mix

When it comes to onions, weeds are not only unsightly, but deter growth. The small root system of the onion cannot compete with aggressive weed roots, which rob both nutrients and moisture. We hand-cultivate; mulch will also reduce weeds effectively.

don't hurry the harvest

In the Philadelphia area, onions are ready for harvesting during late July to early August. The tops lose vigor, yellow and fall over. This is the time that tests your patience. Do *not* try to hasten the ripening process by knocking down the leafy tops. This interrupts the triggering mechanism that controls dormancy in the bulb, an important requirement for storage.

When the crop is flat on the ground with no life left in the leaves, dig. Spread the onions with their tops intact out in the sun for up to a week to cure the bulb and start the drying process. Keep them dry and out of sudden rain storms. We dry onions on racks and old screen doors above ground for good ventilation.

the storage story

When the leaves shrivel and the onions are papery dry, cut the tops about one inch above the bulb. If there is any moisture in the remaining stem, continue drying.

Place onions carefully in mesh storage bags and hang in a dark, dry, protected place. Prevent bruising for it can lead to premature sprouting or fungus attack. Air movement is desirable if you can ventilate the storage area. The ideal storage temperature is 32° to 45°F. Onions can tolerate a few degrees below freezing for short periods, but it is best to avoid that, if possible.

Onions are one of the easiest vegetables to grow. To enjoy a bumper crop of juicy, firm onions with lustrous papery skins, however, the gardener must pay close attention to an onion's personal requirements.

The sun-cured onion is a model storage vegetable. It comes wrapped in its own protective package and when properly treated will remain dormant for many months.

why grow onions yourself

As all onion lovers know, it is hard to beat the succulent, juicy texture of earth-fresh onions, especially the less pungent kinds not readily available in markets. A milder variety such as Crystal Wax Bermuda is delicious in summer salads. White and yellow Spanish types impart their delicate flavor, cooked or raw, to hamburgers. Stuttgarter, being the best keeper and most pungent, is a cook's workhorse vegetable. This onion takes its job seriously, adds zest to the pot, pickles, and relishes.

But, what if the competition bug bites and you want to pit the pride of your garden against other's efforts? Pamper your onions and enter the best specimens in the September PHS Harvest Show. You could take home a blue ribbon and then make a meal of your prize winner!

Here's a tasty treat for your summer parties, fresh from my wife's repertoire.

Bermuda Onion and Cheese Spread

(Yield: 4 cups)

5-7 Crystal Wax Bermuda onions
1 lb. extra sharp cheddar cheese

Grate chilled cheese by hand, or if using a food processor use the julienne/shredder-medium. Set aside. Grate onions by hand, or if using a food processor, cut onions into quarters. Using the steel blade, drop pieces into work bowl with processor running with the on/off motion to chop.

Drain off excess juice in a colander. Combine onion and cheese in a bowl mixing lightly with a fork. Should look fluffy. If still too juicy, drain again.

Place mixture in small bowl, cap with foil and chill thoroughly for four hours. Turn out on a plate and surround the mound with crackers.

Note: Fresh, mild onions are a must. Sweet Spanish onions (3) will do, but do not use storage onions as they are too strong.

Varieties that work for us

	Variety	Source
Sets	Stuttgarter	Agway (outlets around Philadelphia. We use the one in West Chester.) or For catalog write: Agway, Inc., Seed Plant R.D. 4, Zeager Rd. Elizabethtown, PA 19022
Transplants	White Spanish Yellow Spanish Crystal Wax Bermuda	Brown's Omaha, Plant Farms, Inc. Box 787, Omaha, TX 75571 Piedmont Plant Co. Box 17057, Montgomery, AL 36141

First Aid for Sick Onions

Onion maggots	Malathion or Diazinon around mid-May
Thrips	Malathion or Diazinon during June and July
Purple blotch	Maneb or Zineb in July

Also practice crop rotation to reduce fungus diseases such as smut, mildew, basal rot and neck rot.

●

John and Ann Swan garden near West Chester. The Swans are regular exhibitors at the Harvest Show. John serves on PHS's Public Information Committee.

The Pleasures of Bonsai

by Frederic L. Ballard

creating bonsai

The first step in becoming a bonsai grower is to learn to create bonsai. No amount of reading, looking at pictures, watching demonstrations, or visiting exhibits will give you the fundamental understanding that comes from shaping a tree with your own hands. In shaping a tree you learn what arrangements of branches are pleasing to the eye and (equally important) what arrangements are never successful. When you plant your tree in a container, you learn about the relationships between the shape, size and texture of the container and the style, size and species of the tree. In planting miniature groves you learn to arrange the trees in ways that are visually pleasing and horticulturally authentic.

The way to begin is to join a class, which generally consists of three or four workshops with ten or a dozen participants. You will start with an untrained tree. The instructor will talk about the styles particularly suited to that species and will show you how to prune, how to bend the trunk, how to change the angles of branches by wiring, how to choose a container, and how to plant the tree in it. You yourself will do the actual pruning, wiring, bending and planting. You will experience the satisfaction that comes from studying the unformed plant, visualizing its finished form, and seeing that form emerge. The process is quite similar to painting or sculpting and the rewards are very much the same.

No amount of reading, looking at pictures, watching demonstrations, or visiting exhibits will give you the fundamental understanding that comes from shaping a tree with your own hands.

No matter how apt a pupil you may be, you will not learn all there is to know in one class or even in a dozen. There are an infinite number of refinements on the basic techniques, with new ones being developed all the time. Also, there is a limit to how much you can learn in a single exposure. After each stage of instruction there must be a period of practice and application before the student can assimilate the next stage. Most practitioners never feel they know all they would like to know.



photo by A. N. Lenz

Memories of wild and haunted places led the artist to combine twisted tree (crabapple) and textured rock, creating a living scene from the opera *Der Frieschütz* (The Free Bullet) by Carl Maria von Weber.

buying bonsai

Not everyone will find complete satisfaction in creating bonsai. In some people, the appreciation of form outstrips the ability to create it. For them, the solution is to buy finished or semifinished trees. No one criticizes an art collector because he buys paintings for his collection. No one looks down on a collection of bonsai because they have been purchased.

One of the pleasant aspects of purchasing is the opportunity to visit bonsai nurseries. Today, there are nurseries up and down the east and west coasts and in many places in between, not to mention Japan, Hong Kong, Hawaii and other foreign lands. They tend to specialize in particular species (usually those that are easy to grow in the locality) and to concentrate on styles to which those species are well adapted (for example, junipers trained in driftwood style in southern California). In the process the nursery growers acquire a great deal of know-how, which most of them are happy to pass along to a customer. A person who likes to buy bonsai can make friends and share interests all over the world.

maintaining a collection

Maintaining a collection of bonsai (whether created or purchased or some of both) is a pleasure in itself. A bonsai collection, unlike a collection of paintings, demands frequent attention – for watering, pruning, grooming and repotting. This may sound like a nuisance, but it isn't. Bonsai may look different from one day to another because of changes in the seasons, the time of day, the light, or the weather. Buds appear and develop. Blossoms open. Fruit ripens. No matter how preoccupied you may be with other things, when you do your daily watering, something about a tree will catch your eye and give you a moment of new interest.

Also, trees (again unlike paintings) change over time. Branches become thicker in relation to trunks. The mass of foliage becomes larger in relation to the container. Most fascinating of all, new patterns and contours emerge without warning. Every bonsai grower has had the experinece of looking at a familiar tree and suddenly realizing that eliminating a branch or changing its angle, or making some other ajustment will give new strength and clarity to the form of the tree and greatly improve its appearance.

Sometimes complete restyling will be called for. A tree that pleased you a year or two ago may look awkward today. Perhaps it has grown away from your original concept; perhaps your taste has changed; perhaps the tree has lost an important branch. When this sort of thing happens, you can take a new approach, almost as if you were dealing with a new tree. Formal styles can be changed to informal. Naturalistic shapes can be made more stylized. It is even possible,

continued



photo by A. N. Lenz

Although this juniper bonsai is traditional in its windswept styling, the container is not. Remaining from the artist's early adventures in pottery, its spherical shape mimics the texture of the exfoliating granite of Yosemite, where the artist scrambled among dwarf pines and juniper of cascading character.

on occasion, to change a tree from upright to cascade, or vice versa.

developing your own style

When you shape a bonsai you are not trying to make it look like a particular Japanese specimen or even like Japanese trees in general; and you are not trying particularly to conform to Japanese rules. Knowledge of Japanese principles is helpful, probably essential. So is knowledge of horticultural and aesthetic principles. But all the rules in the world will not tell you how the finished tree should look. That depends on your judgment, your taste, your vision and your skill.

A bonsai collection is a reflection of its owner's taste. Some people's trees are characterized by serenity; others' by stress. Growers differ in their emphasis on trunks, surface roots, ground cover, and other features. Many concentrate on evergreens; others prefer deciduous plants. Over the years, you will develop your own style, which will reflect your way of looking at the world and distinguish your trees from others.

collecting

The epitome of bonsai is thought to be the collected specimen, typically a tree that grew on a mountain cliff, where it was stunted and twisted by winter gales. Trees like this can still be found in high mountains, along the seacoast, and sometimes in swamps or near deserts. Seeing the possibilities in such a tree is an art in itself. Freeing it from its precarious location and successfully transferring it to a container requires great skill, great patience, and more than a little luck.

Collecting natural trees is almost a national pastime in Japan and is growing in popularity in this country. A collecting expedition gives you an excuse to hike and climb with like-minded companions, plus the thrill of seeing your quarry and usually (but not always) the satisfaction of bringing it back alive. Additionally, in many cases the collected tree will be more impressive than any you can create from nursery stock.

containers and accessories

Bonsai containers and accessories offer almost as many rewards as the trees themselves. They are the subject of much lore and learning. What shape, size, color and texture are suitable for your tree. What kind of stand is appropriate. What scroll or accent plant should accompany it. If you get interested in things like this, you will find yourself becoming an expert in ceramics, scrolls, stands or viewing stones, that is, the stones that are displayed with bonsai, or sometimes alone, because of their interesting forms or their resemblance to miniature landscapes.

Containers and accessories can be very expensive. On the other hand, if you are a cabinet maker, you can make your own stands. If you are good at wood carving, you can put your skill to use making bases for viewing stones. Even if you're not a potter, you can make containers out of concrete. At least one member of the Pennsylvania Bonsai Society has painted his own scrolls.

good fellowship

The final reward of bonsai lies in the fellowship of bonsai growers. For anyone who is interested, there are meetings, study groups, collecting expeditions, trips to nurseries and so forth. When a noted authority comes to town to give a lecture or demonstration, there are opportunities to meet the master in a clinic or workshop, and at informal social gatherings. There are exhibitions to be staged, auctions to attend, collections to visit.

Books

The Art of Training Plants. Ernesta D. Ballard. 128pp. c1962.
This book on training decorative plants is also the first book by an American to provide information on bonsai. Translates bonsai culture into familiar horticultural techniques. Still the best on indoor bonsai. Plant list. Index. A classic.

The Beginner's Guide to American Bonsai. Jerald P. Stowell. 140pp. c1978.
A readable, well-illustrated account of an American Master's experience and personal collection. All phases of the art and technique of bonsai are covered. Index.

Bonsai for Americans. George F. Hull. 256pp. c1964.
Japanese bonsai techniques adapted to American trees and growing conditions. Lively and readable. Plant list. Index.

Bonsai Indoors and Out. Jerald P. Stowell. 134pp. c1966.
The experiences of a dedicated bonsai hobby-



photo supplied by John Y. Naka

Californian John Y. Naka with his 56-in. Montezuma cypress *(Taxodium mucronatum),* which is on exhibit with two other plants of his at the Philadelphia Flower Show from March 11 to 18. Naka, considered one of the finest bonsai artists in the country, has trained the cypress since 1960.

Bonsai at the Philadelphia Flower Show, March 11-18, 1984

The Pennsylvania Bonsai Society, The National Arboretum and John Yoshio Naka are all part of a central bonsai exhibit at the 1984 Philadelphia Flower Show. The Pennsylvania Bonsai Society will select approximately nine bonsai from among the finest available in this area; emphasis will be on larger trees for the type of display area designed for the Show.

The trees from the National Arboretum were given by Japan to the United States in 1976, the Bicentennial Year. Some of the trees came from the Emperor's collection. The bonsai have never left the Arboretum since they arrived from Japan; the only exception is the one loaned to the White House when the Emperor visited there.

John Naka, the outstanding bonsai master in the United States, will be exhibiting his world famous Goshin forest. Consisting of 11 junipers *(Juniperus chinensis foemina)* the single collection is 52½ in. high, 55 in. across and is held in a pot 35½ in. long.

Two other trees will also be on display through the Show: a silver blue atlas cedar *(Cedar glauca)* 40 in. high and 44 in. wide, and a Montezuma cypress *(Taxodium mucronatum)* 56 in. high and 36 in. wide.

■ ■ ■

This article will be available in leaflet form (25¢) at the Pennsylvania Bonsai Society portion of the bonsai exhibit at the 1984 Flower Show. An earlier piece, "Understanding Bonsai," appeared in the March 1982 issue of *Green Scene,* and also was sold as a pamphlet by the Pennsylvania Bonsai Society at the 1982 Show.

ist growing bonsai in Northeastern U.S. Chapter on tender plants for indoor bonsai. Index.

Bonsai Miniature Potted Trees. Kyuzo Murata. 114pp. c1964.
Instructive guide for growing and enjoying bonsai by Japan's most venerable master. Detailed information for many bonsai species. No index.

Bonsai Miniatures. Zeko Nakamura. 62pp. c1973.
A "quick and easy" approach to enjoyment of the smallest bonsai, less than six inches. Packed with information and color photographs. No index.

Bonsai-Saikei. Toshio Kawamoto and Joseph Y. Kurihara. 362pp. c1963.
The best self-teacher of Japanese bonsai, saikei (miniature tree and rock landscapes), and gardens. Extensive instructional drawings. Emphasis on horticulture and fundamentals. A classic. Index.

Bonsai Techniques I. John Yoshio Naka. 262pp. c1973.
Japanese-American bonsai master details precise techniques, mathematical ratios, care and major Japanese styles. Encylopedic, well illustrated. No index. A classic.

Bonsai Techniques II. John Yoshio Naka. 442pp. c1982.
Advanced techniques for the specialized and experienced bonsai enthusiasts. Sketches, photos, index.

Bonsai Trees and Shrubs. Lynn R. Perry. 234pp. c1964.
American horticulturist and student of Kyuzo Murata in Japan describes his bonsai methods and techniques. Specific instructions for over 50 trees. Well indexed.

Commemorative Album, Marking 25 Years of Bonsai Instruction. Yuji Yoshimura. 64pp. c1977.
First American instructional book on refinement of specimen bonsai with photos in sequence over 10-year period or longer. Care and training information on 40 species for bonsai.

Grand View of Japanese Bonsai. Japan Bonsai Society, Inc., comp. and Yuji Yoshimura, translator. 352pp. c1972.
Large format color photographs of 300 contemporary Japanese bonsai by seasons and styles. Brief descriptive text. Beautifully printed. Index.

Brooklyn Botanic Garden. Series of 3 handbooks: *Handbook on Dwarfed Potted Trees: the Bonsai of Japan.* 97pp. c1959; *Handbook on Bonsai: Special Techniques.* 89pp. c1966; *Bonsai for Indoors.* 77pp. c1976.
Well-illustrated popular guides with a wide range of information on bonsai.

Man Lung Artistic Pot Plants. Yee-sun Wu. 355pp. c1969, revised 1974.
The only book in English on Chinese bonsai styles, techniques, plant materials and care. Over 300 photographs including color from collection of author, noted bonsai fancier and financier. No index. A classic.

Miniature Trees and Landscapes. Yuji Yoshimura and Giovanna M. Halford. 220pp. c1957.
First bonsai book in English authored by Japanese bonsai master. Authentic, specific, and thorough. Appendix with basic data on 340 bonsai plants. Excellent index. A classic.

All of these books are available through PHS Library.

Membership

Pennsylvania Bonsai Society
James M. Nutt, Jr.
Treasurer
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New Hope, PA 18938
215-862-5925

Dorothy S. Young
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215-646-4093

(Dorothy Young's book, *Bonsai, The Art and Technique,* 423 pp., 300 photos and drawings, will be published by Prentice Hall in August, 1984.)

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Frederic L. Ballard is a lawyer who loves gardening and who particularly enjoys bonsai. He is a past president of the Pennsylvania Bonsai Society and has played a large part in staging a number of bonsai exhibits at the Philadelphia Flower Show.

The Apple(orchard) Computer

by Jane G. Pepper

It was mid-April and a couple of warm days had finally brought the first of 50,000 fruit trees into bloom in Moorestown, in the Moriuchi orchards. The family's attention, however, was not solely focused on the blooms outdoors. In the packing house, the conveyor belts were buzzing and the computer humming as Tak Moriuchi, son Fred, daughter Carol and daughter-in-law Caroline organized the packing and shipping of the previous year's apple crop from cold storage.

This sophisticated orchard goes back to the first farm Tak Moriuchi bought in New Jersey in 1948. During those first years he grew almost everything – rhubarb, asparagus, strawberries and tomatoes to name just a few crops. In later years he settled down to specialize in apples and peaches, and now Tak and his family manage a sophisticated orchard operation. The rewards for specialization in fruit crops can be great but the risks are also high. Twice, in two separate years, hailstorms wiped out his peach crops and reduced the apple crop. Other years, however, bumper crops provide the Moriuchis with capital to reinvest in the business.

a year-round business

Orchard management is a year-round business for the Moriuchis, and their work force expands and contracts to meet their needs. In August, when I first visited the orchard, 100 pickers and packers were on the job. The following April they had just begun to expand beyond the winter core of 12 workers. The fall crew had picked and stored 150,000 boxes of apples in October and November. Of these, 10,000 were packed and shipped in the fall, 10,000 have been converted into juice, 50,000 had been delivered to the cannery and the balance placed in controlled atmosphere storage – 50,000 boxes in the Moriuchi storaoge area and 30,000 in a rented facility in Moorestown.

In the fall, when the crew has filled the controlled atmosphere chambers to the ceiling with apples, Fred Moriuchi bolts the inner doors and places outer doors on the chambers, as part of the sealing process. Fred will not open these doors until they are ready to start shipping in February, but he is not free to relax and forget about the apples. Inside the chambers the temperature must remain at 31°F and the ratio of oxygen to carbon dioxide must remain constant. Even slight variations can ruin the entire crop so the chambers are equipped with sophisticated monitoring devices to record the pertinent data in the Moriuchi office.

sells through a co-op

The Moriuchis sell both peaches and apples exclusively through Jersey Fruit Co-op, an organization Tak has led as president for several years. In February the Co-op contacts the family, alerting them that the time has come to open the chambers and start packing apples. The route the average apple takes from the sealed storage chamber into the plastic bag you pick up at the supermarket is long. First they are lowered into a bath so the small apples, the bad apples and the debris will float to the top. Then the fruit must be warmed with hot water so the skins will accept the wax, a material that not only makes the fruit more appealing to the consumer, but also prolongs its shelf life. After waxing the fruit is dried at 95°F.

computer production line

Sizing in the Moriuchi operation is done by computer. After waxing, the apples move on a conveyor belt past a team of screeners who remove unshapely and poorly colored fruit. From the conveyor belt the fruit is fed into a series of shallow cups. While in the cup, the apple is weighed and moved by directions from the computer into one of several compartments, where a packer waits with a plastic bag.

The label on the bag of apples you purchase indicates the bag weighs 3 lbs. Tak programs his computer for each bag to weigh 3 lbs. 3 oz. to guard against shortages. The initial stages of filling a bag are easy – it's that final apple that must weigh exactly the right amount to bring the bag up to 3 lbs. 3 oz that challenges the system. The computer will make 13 attempts to get the exact weight. If it doesn't come up with the perfect apple after 13 attempts, it dumps in the next apple in line and the bag is now overweight. With an overweight bag, the consumer wins a bonus. For Tak, a couple of ounces overweight here and a couple there will add up, by the end of the season, to a substantial revenue loss. Thanks to the computer the Moriuchis have been able, during the past couple of years, to tighten up their operation, making accurate, speedy shipments.

Tak first saw a computerized packing operation on the West Coast where huge systems organize thousands of apples daily. About six years ago he met the manufacturer of these systems at a post-conference tour for apple growers in Mexico and challenged him to design a computerized packing system for a small operation, such as Tak Moriuchi Inc. They experimented for four years, mostly in the Moriuchi packing house, and about two years ago the system started to work efficiently.

continued

photos by John Gouker



◀ Grading in the packing house is done speedily and efficiently with help from modern technology.

A fine spring day finds Tak Moruichi checking blossoms in the orchard. ▼





In the grading operation, the packer's goal is to have each bag weigh exactly three pounds.

While Tak and Fred are fussing over the packing operation Carol, who has a master's degree in integrated pest management, works with the company's consultant to come up with the correct formulas for their spray program. No longer do they spray on a regular schedule. Instead, Carol spends hours studying charts from the local weather bureau that record the temperature and relative humidity. From a combination of these two factors Carol can gauge the hours of wetness each day and determine when they need to spray for fungal infections. From March through August she also monitors insect populations, using pheromone traps, again in an effort to determine the correct timing for the sprays, allowing them to use fewer chemicals more effectively.

Orchard management was never a simple affair and a couple of trips to the Moriuchi orchard was enough to convince me that you need to have a unique combination of horticultural, entomological, engineering and business skills to run a successful business. And even then, with a computer, a cooling unit strong enough to make 100 tons of ice a day, seven miles of portable irrigation pipe, 24 miles of buried tubing, two-way radios and cordless telephones, success is not assured because, as is the case on any farm, the Moriuchis must still contend with the weather. For the past couple of years late spring frosts have caused sleepless nights for East Coast orchardists. Thanks to the orientation and elevation of their land, the Moriuchis have escaped damage and have had excellent peach crops. Last spring, however, three days of unusually high temperatures in April left the apples poorly pollinated. Instead of collecting nectar and pollen, and consequently pollinating the blossoms, the bees were working overtime inside the hives trying to keep things cool. Who knows what will happen this year.

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Jane Pepper is the executive director of the Pennsylvania Horticultural Society. She writes a weekly gardening column for the Sunday Books/Leisure section of the *Philadelphia Inquirer* and is a frequent contributor to *Green Scene*.



Carol Moriuchi monitors insect populations using pheromone trap.





No, it's not a scene from *Wuthering Heights.* It's Modern Times. Every effort is made to reduce the quantity of chemicals used for pest control, but finally some spraying is required for the 50,000 trees.



Carol, Fred and Tak Moriuchi are proud of the finished product.

What Happens When a Tornado Disrupts Nature's System

by Bill Olson



Wildflower Preserve service road covered by large oaks and maples.

To most people tornados mean property damage and loss of life. Sometimes, we don't think of our natural systems and how they are affected. Sure, nature will restore the damage over time through that process called succession. However, when a tornado strikes a wildflower preserve, there are many factors to deal with.

changes triggered by tree damage

When the tornado traveled through the Bowman's Hill State Wildflower Preserve's 100-acre site on March 21, 1983, the most noticeable damage was that more than 200 trees were destroyed. We noted that the various tree species reacted differently to the high winds. As one would suspect, the evergreens were the most affected. Their large surface area acted like sails to catch the destructive winds. Red cedars *(Juniperus virginiana)* were pushed over like dominoes. Giant white pines *(Pinus strobus)* were also uprooted as well as white spruce *(Picea glauca),* american holly *(Ilex opaca),* and douglas fir *(Pseudotsuga menziesii).* Trees by streams were uprooted from the wet ground soaked by the heavy rains that fell during the storm. Shagbark hickory *(Carya ovata),* red maple *(Acer rubrum),* sugar maple *(Acer saccharum)* and american beech *(Fagus grandifolia)* were uprooted along Pidcock Creek. Trees that stood higher than surrounding trees were also affected more than others. Red oaks *(Quercus borealis)* and black oak *(Q. velutina),* over 150 years old, were destroyed. Again, wet soil conditions were a contributing factor, but also their canopy, or top, exposed above the surrounding woods, made them particularly vulnerable.

The sycamore *(Platanus occidentalis)* reacted strangely in the winds. Their tops were twisted off about 15-20 ft. from the ground. This happened to three trees along Pidcock Creek. We are assuming that while sycamores have hard, tough wood, their root systems are extensive and the weak link in the species is where the trunks branch.

Many trees (maples, oaks, hickories and ashes – *Fraxinus* sp.) lost large branches. This loss opens up the canopy of the woods, which in turn causes new branches to grow on the remaining trees, stumps to sprout, and root suckering. The growth of the previously suppressed seedlings and saplings also will fill the newly opened areas.

how shrubs were affected

The only shrubs directly damaged were the ones unlucky enough to be in the path of falling trees. Shrubs, however, have been and will be affected indirectly by the changes in canopy. The increased light intensity has affected soil moisture and temperature. Shrubs, once in shaded, cool, moist situations now face sunny, hot, dry situations. For example, our azaleas were affected when we lost some of the large shade trees. To help these shrubs survive we immediately planted 10 sugar maples and one sweetgum *(Liquidambar styraciflua).* Because the summer of '83 was particularly dry we had to be conscientious about watering the newly planted trees and shrubs.

PART II

Oliver Stark of Bowman's Hill State Wildflower Preserve discussed in the January issue of* Green Scene *the cost of clean-up efforts, dollars and work hours. Bill Olson discusses here the ecosystems' adaptations.

photos by Bill Olson



Red cedars *(Juniperus virginiana)* uprooted along President's Drive.

herbaceous plants

Herbaceous plants were affected directly when they were uprooted with the huge root balls of trees. Their exposure to the weather was critical because the plants were coming out of winter dormancy. As happened with the shrubs, we will see more damage from indirect rather than direct factors. Differences in the growth conditions such as soil, temperature and light intensity will influence changes. If the area is not replanted certain exposed sections will go back to an earlier successional stage. Annuals and perennials will move into exposed areas until the canopy slowly closes again and they cannot survive. Then the indigenous plants can make a comeback. A certain number of woodland species have the ability to persist. Adapted to high light conditions during the spring, these plants will tolerate high light intensities. Later, during summer, the annuals and perennials that can exist in open areas provide shade like the trees that were once there. One critical spot is on the fern trail, where giant oaks were destroyed. This opened up the trail in certain areas. Our stand of lady ferns *(Athyrium* sp.) are now in direct sunlight. We hope these species will tolerate this condition until the canopy closes once more. One possible solution will be to transplant shrubs such a spicebush *(Lindera benzoin)* and bladdernut *(Staphylea trifolia),* both of which are indigenous to the Preserve. These will provide shade for such areas. We were lucky in one way that the tornado did not damage any of our man-made habitats, which are usually very sensitive to severe changes.

Another result of the disruption of soil and changes in light intensity is that certain opportunistic plant species colonized damaged areas; for example: stilt grass *(Eulalia viminea),* poke *(Phytolacca americana),* brambles *(Rubus* sp.), Japanese honeysuckle *(Lonicera japonica)* and poison ivy *(Toxicodendron radicans).*

When natural systems are disrupted in this way, many changes take place. Succession, the change of species composition and community structure over time, is a dynamic process that will return areas to some stage of order. When dealing with a wildflower preserve as we are, emergency work, such as removing damaged trees, replanting trees and shrubs, and weeding out the opportunistic species, is necessary to allow for survival of our valuable Pennsylvania flora. While certain species will disappear with this catastrophe, other species will take their place to once again establish a balance in natural systems.

The Wildflower Preserve, assisted by the Bowman's Hill Wildflower Preserve Association, Inc., is administered by the Pennsylvania Historical and Museum Commission in cooperation with the Washington Crossing Park Commission.

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Bill Olson is a naturalist for Bowman's Hill Wildflower Preserve Associaton and is interested in botany, as well as other aspects of natural history. His botanical interests include: raising ferns from spores and wildflower photography. He presents programs for interested groups and leads canoe trips to the Pine Barrens of N.J.

CROSIERS
Harbingers of Spring

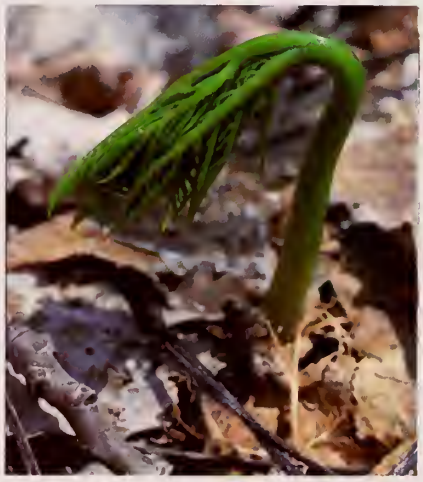
by F. Gordon Foster

Some people call them "fiddleheads," a name alluding to their violin scroll-like appearance; others refer to them as "crosiers" because of their resemblance to a bishop's or shepherd's hooked staff. Regardless of nomenclature, both names refer to the unfolding leaf buds of the ferns we see in early spring.

Crosiers, depending on the species, have a wide time-spread in their order of appearance. Most crosiers of our Delaware Valley ferns appear in early spring. Fragile fern, *Cystopteris fragilis,* one of the first, is often covered with a late snowfall. Conversely, the lace-leaf grape-fern, *Botrychium dissectum,* does not appear until late July or early August but compensates for its tardiness by remaining evergreen throughout the winter.

Most fern leaf-buds have a unique manner of uncoiling or unwinding, reminding us of a discarded alarm clock spring. This unwinding occurs in virtually all ferns and is known as *circinate vernation.* As the leaf continues to reach upward, the crosier leads the growth. Even where the leaf may reach a height of 24 to 30 in. or more, the last uncoiling of the crosier is seen just as the leaf reaches maturity. During this vertical unwinding, the pinnae or leaflets unwind in a lateral direction.

There are exceptions to all rules. Grape ferns of the genus *Botrychium,* of which there are many species, do not have conventional crosiers. This genus, which incidentally is distributed worldwide, is far more primitive than most other ferns we know so well. The leaf structure of grape ferns is developed beneath the mulched soil during late winter and early spring. When the dormant period of the plant comes to a close, the neatly packaged leaf rises to the surface and *unfolds.* This contrasting initial growth is known as *straight vernation.*



Rattlesnake fern, *Botrychium virginianum.* Unlike other ferns, this species does not have an uncoilng crosier. Here the leaf, already formed beneath the mulch, *unfolds* as a package to form a nearly mature plant. This process of growth is known as *straight vernation.*

Some ferns have coverings of fuzzy white or lightly colored hairs. Even these hairs are of interest if viewed under a microscope as some have simple, one-celled columns like a human hair, an example being those of the hay-scented fern, *Dennstaedtia punctilobula.* Hairs of others, like those of the curly-lip fern, *Cheilanthes lanosa,* as tiny as they are, are multi-cellular with joints to form a column.

Since the crosiers of many ferns have protective earth-colored scales or hairs, it is important that no rake or hoe be used in their proximity during the annual spring cleanup.

Wood- or shield-ferns differ in their coverings by having massive colorful scales. These scales, consisting of a coarse cellular structure, may be as long as 18mm and 6mm wide. Scales of this type are generally on larger crosiers and give the fern a very robust appearance. A good example of a heavy scale-covered crosier is found in the marginal shield-fern, *Dryopteris marginalis,* or Goldie's shield-fern, *D. goldiana.* These scales may be so dense as to entirely obscure the crosiers as they emerge from their long winter hibernation.

Ostrich fern, *Matteuccia struthiopteris,* and the royal cinnamon, and interrupted ferns, all members of the genus *Osmunda,* differ from other species in their protective covering. During the initial stages these ferns have matted caps which drop off as the crosiers unfold. The hairy caps of the *Osmundas* are quickly gathered by early robins eager to line their nests with a soft, downy material.

Oak fern, *Gymnocarpium dryopteris,* has a ternate leaf, the leaf appearing to be made of three separate leaves jointed to the top of the stipe. Thus, as the crosier emerges from the ground, it actually has three small ball-like bodies, really independent crosiers jointed to the stipe.

I think maidenhair ferns have the most unusual crosiers and leaf development of all ferns. Our native maidenhair fern, *Adiantum pedatum,* has an erect stipe, which divides to form finger-like pinnae. In studying the reddish-brown crosier, the vertical unwinding is quickly noticed. Further study will reveal the coiled embryo-like structure with its developing pinnules.

Among our native ferns there are species with simple leaves like the walking fern, *Camptosorus rhizophyllis,* and the very rare hart's-tongue fern, *Phyllitis scolopendrium.* The first has a long, tapering leaf, and the latter is more tongue-like. Both are usually without any incisions. The crosiers of these



Massive chestnut-brown scales conceal the leaf structure of this fern as it emerges from its protective winter mulch. Goldie's shield-fern *(Dryopteris goldiana)* crosiers in characteristic crown formation typical of this genus. These crosiers are among the most massive and rugged appearing of our northeastern ferns.



Hart's tongue fern, *Phyllitis scolopendrium.* Rarest of all northeastern ferns and one of the few *simple*-leaved species. Circinate vernation unwinds the leaf from a cordate base to the apex.

photos by F. Gordon Foster

ferns have a simple, tightly wound vernation.

Crosiers of the gold-back fern, *Pityrogramma calomelanos,* a native of our southern and western states, emerge from the ground covered with a bright yellow, waxy powder, making a beautiful bishop's "gold plated" staff. As growth continues, the yellow powder completely covers the underside of the leaf.

Staghorn ferns are the curios of ferndom and are odd in many respects. Rather than forming crosiers of any type, their leaves, both the sterile, round shield-leaf and the pendulous "antler-like" fertile leaf have their origin in the center of the plant and quietly expand to take their respective positions.

Since the crosiers of many ferns have protective earth-colored scales or hairs, it is important that no rake or hoe be used in their proximity during the annual spring cleanup. Remember, a damaged crosier may result in a malformed leaf or completely destroyed plant.

The perennial question continues to be asked, "Can fern crosiers be eaten?" At times, stories appear in the press regarding the toxicity of ferns to both humans and cattle. The *young* crosiers of the ostrich ferns, *Matteuccia struthiopteris,* are the choice of the gourmet and have long been relished without any ill effects. But as for me, I prefer to let these fascinating forms of plant life grow to maturity when I can enjoy them and share their cool, refreshing beauty with my friends.

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Northern maidenhair fern, *Adiantum pedatum.* The beginning of this leaf gives an excellent example of circinate vernation. As this fern reaches upward, both vertical and horizontal unwinding are apparent.

F. Gordon Foster is an honorary staff member of both the Brooklyn and New York Botanical Gardens, and in 1978 received the PHS Distinguished Achievement Award. The 3rd revised and enlarged edition of his book, *Ferns to Know and Grow,* is scheduled for publication in September, 1984 (Timber Press, Oregon).

Imagine a garden where high winds batter plants continually, where plants are vulnerable to thousands of crushing feet, hundreds of bicycle wheels, and an occasional motorized vehicle. To make life even more difficult for any living, immobile thing, consider the compaction of already heavy clay soils, little or no topsoil, salt spray from 125 tons of winter road salt, and the inaccessibility of water. Add to this the multitudes of underground electric, telephone, television cable, gas, and water lines that must be avoided when digging and planting.

Would you dare to choose plants for such a situation, much less attempt a planting plan to eliminate or ease some of these problems? Rick Colbert faced such a challenge five years ago after he convinced the Newark Parks and Recreation Department that they really needed him, a trained horticulturist. Under his guidance, the median strips and traffic triangles of Newark, Delaware have metamorphosed from dull, barren spaces into miniature gardens of uncommon plants. With careful plant selection, thoughtful design and well-planned maintenance, Rick has solved many of the predicaments that confront highway horticulture while adding life and variety to the city landscapes. The award-winning beautification program* has continually expanded since 1979 to include over 25 sites, touching every corner of the town.

While low maintenance may be the ticket to the purses of budget-minded government officials, it is aesthetic appeal that keeps the public's heartstrings loosened.

selecting plants

Locating plants that can tolerate intentional neglect and abusive environments begins the low maintenance effort. Plants are tested and selected to withstand the hot, dusty, polluted air along heavily trafficked roads and to hold their ground against the attack of

*The Grand Award for 1983 Professional Grounds Maintenance (for the maintenance of the traffic islands). The award was made at the 1983 annual meeting of the Professional Grounds Management Society.

HIGHWAY HORTICULTURE: *Median*



hungry insects, spreading diseases and invasive weeds. Plants that require special attention, such as heavy feeders or perennials that must be staked or annually divided are not tough enough for the battle against limited staff time. Drought tolerance is another important selection criteria for low maintenance. The use of groundcovers such as liriope and bamboo minimize mowing and edging, saving money on labor and machine use.

Practical and aesthetic considerations must accompany the search for carefree plants. Plant selection and design, for example, must take into consideration the driver's need to see. Plants 3 ft. and higher are placed where they will not block the motorist's sightline. Plants with flowers that fall off or are covered up after they fade, save deadheading time while looking good. Perennial flowers that dry on the stalk, such as *Rudbeckia fulgida* 'Goldsturm' and *Sedum spectabile* 'Autumn Joy' do double duty as winter interest.

While low maintenance may be the ticket to the purses of budget-minded government officials, it is aesthetic appeal that keeps the public's heartstrings loosened. Plants are chosen and beds are designed with seasonal and horticultural variety in mind. Colorful fruits, flowers, foliage and twigs flatter the scenery all year, but especially in the fall and winter. Birds add liveliness to the landscape, tempted to the vicinity by delectable winter fruits. Shapes and textures capture the wind and sculpture the snow, conjuring forms that dazzle. In early spring, daffodils offer cheers to passing motorists, upstaging nearby plants that exult in later seasons. And during the summer, annuals join the perennials in painting the town red, orange, purple and white.

defensive designing

Defensive designing can determine the success or failure of plantings in continually disturbed areas. Details of the use of a site determine what plants can survive there. Sharing the streets with Newark's 12,000-member student population means protecting plants from epidemic numbers of that dangerous pest, *Homo sapiens*. Short-cut tracks spontaneously appear as the pedestrian infantry paces the most direct line

continued

Doesn't Mean Mediocre

by Lucy Jones



Prickly pear cactus *(Opuntia humifusa)* detours short cuts on traffic island edges and near tree roots. The long-blooming and uniform flower spikes of the plumose cockscomb *(Celosia cristata* 'Apricot Brandy') color the landscape.



The annual (sweet alyssum, *Alyssum maritimum,* sold as *Alyssum* 'Carpet of Snow') lives alongside a low-growing shrub (mugo pine, *Pinus mugo mugo)*



One of the first traffic islands to undergo beautification remains virtually unchanged since 1981. The heavily used Main Street site thrives with dwarf fountain grass *(Pennisetum alopecuroides* 'Hameln'), lily turf *(Liriope muscari* 'Big Blue'), and sweet alyssum *(Alyssum maritimum,* sold as *Alyssum* 'Wonderland').

between any of many sets of two points. Rather than avoid the inevitable, these predetermined walkways are included in planting designs as strips of forgiving lawn grasses or paved paths. The clever use of plants with natural defense mechanisms, such as the spiny "prickly pear cactus," keeps wandering walkers on the proper paths. Grass borders in strategic locations also buffer susceptible plants from excessive road salts and wayward car wheels as well as oppressive foot traffic. Angled paths define planting beds and apparently broaden the hot-dog shape of median strip gardens.

Sharing the streets with Newark's 12,000-member student population means protecting plants from epidemic numbers of that dangerous pest, *Homo sapiens.*

The central placement of trees in mulched beds limits damage by mowers, pedestrians and vandals. This technique also reduces labor-intensive hand-mowing. Sidewalk trees are trimmed high above an arm's reach and surrounded at the base by grates that allow water to reach the roots while abating soil compaction. Young saplings are staked to give them a fighting chance with high winds. One city gardener observed that people are less likely to injure staked trees – as if they were crippled or sick and required more sympathy or respect.

maintenance

Before planting a new bed, work crews spray it with a non-selective, post-emergence herbicide, such as Roundup. Because there is no residue, the land can be tilled and planted seven to ten days after treatment. At that time, lime and fertilizer are added as needed. Leaf mold from the city's curbside collection fortifies the depleted soil with nutrient-rich, structuring, and moisture-holding compost. Mulch, chipped from discarded Christmas trees, is applied before planting. It keeps weeds out and water in the soil around the shrubs, perennials, and annuals.

Shredded hardwood mulch is purchased to supplement the supply. Both kinds of mulches keep soil temperature cooler and provide an attractive soil cover. Mulching also eliminates the high labor expense of mowing and trimming

grass around trees and shrubs. Workers save time by planting seedlings after the mulch is spread, rather than mulching around plants. This method is also less harmful to the young plants.

More than 3,000 annuals are used each year, grown from seed sown directly into plastic cell packs and started early in greenhouse space rented from a local florist. The key to successful summer annuals for high temperature and low water conditions is the early and thorough development of a big root system. The larger starting container (2¼ in. x 2¼ in. x 2¼ in.) combined with a planting schedule that anticipates mid-May showers, reduces the need for watering.

Dry fertilizer of 10-10-10 composition is mixed into annual beds before planting and is usually not applied again. Perennials are sidedressed with a 10-10-10 dry fertilizer when needed, about every other year. Bone meal supplements bulb nutrients every two years. Shrubs and trees are not fertilized, since fast growth is not desired and high concentrations of salts are worrisome in dry soils.

Since trees, shrubs, and perennials are not irrigated, they depend mostly on Mother Nature to provide water. Up until the drought of 1983, only the windiest, sandiest sites were watered, even in the driest of summers. But under last year's staggering conditions, emergency rations were doled out to save the withering specimens. Rick purchased a tank that was placed on a truck bed and transported water from a local creek to wet down the wilted plants. The narrower medians required more water, probably due to drying winds created by nearby car movement and the higher proportion of heat-absorbing asphalt.

operations

University of Delaware plant science students are hired as city gardeners during the growing season from March to November. These eager and knowledgeable workers gain valuable work experience and often return for two or three seasons. Besides the planting and pruning techniques that any gardener must know, they also learn to contend with the broken glass, soda cans, beer bottles, assorted car parts and pounds of paper litter found among the horticultural treasures. They must work on small strips of garden with cars whizzing by on both sides and not forget where they are – a mistaken step may be disastrous.

The new students learn each year by working alongside the seasoned students. Contact with current plant science students keeps the department up-to-date on the latest University-taught horticultural methods and materials. Seasonal evaluations give students an opportunity to acknowledge their strengths and weaknesses.

Rick allots a total of 120 hours per week to student workers, who work full-time in the summer and part-time in the fall and spring around their class schedules. Gardeners fill out daily worksheets to record the time spent at various tasks and sites. In 1983, hours spent on traffic islands ranged from 40 to 300, adding up to labor costs of $163 on the cheapest island to $1,140 on the costliest one (which is 92,000 sq. ft.). The biggest hourly expense, at the 1982 base rate of $3.80, was travel: 662 labor hours valued at $2,515.60.

Other than seasonal help, the city horticulture department is a one-man show. Rick operates on an estimated annual budget of $15,000 to $20,000 with which he buys supplies and plants and pays employees. The City Council's capital budget provides $6,000 toward plants and supplies for development of new areas. The rest of the budget comes from the Department of Parks and Recreation and donations from Newark merchants. Businesses gave $3,600 in 1983 and have committed almost $4,000 in 1984 toward beautification of specific sites. Discrete signs are posted on the sites to recognize the gifts. This latent source of income, Rick hopes, will increase in amount so the plantings can increase in quality and quantity. An added income of $500 came from the public sale of the first perennial divisions in 1983, another promising source of future support.

One city gardener observed that people are less likely to injure staked trees – as if they were crippled or sick and required more sympathy or respect.

A highway median could not be further removed from the idyllic garden setting, yet where could flowers and foliage be more appreciated than in places where thousands pass by, usually greeted only with rows of traffic lights, miles of pavement, and more moving metal? Instead of glass-spattered, unyielding concrete, traffic dividers can be a visual oasis, introducing the public to horticulture's miracles. Citizens of Newark have noticed, creating a public demand answered by a local garden center that lately advertises "the ornamental grasses used in city of Newark traffic islands."

Some Selected Plants for Municipal Sites and Special Features

Annuals

Catharanthus roseus 'Polka Dot': uniform, low-growing ground cover with short-stemmed, red-eyed white flowers.

Celosia plumosa 'Apricot Brandy': thick-stemmed flowers in tight clusters to discourage picking.

Salvia farinacea 'Victoria': intensely purple spikes in September.

Perennials

Ceratostigma plumbaginoides (leadwort) previously sold as *Plumbago larpentiae:* low-growing mats of peacock blue flower clusters opening throughout autumn, leathery, green foliage becomes deep mahogany, able to grow under the worst of conditions.

Pennisetum alopecuroides: clumping fountain grass, successful in disturbed areas with dry conditions, 4 ft. tall with silvery rose plumes from July through September, pleasing winter texture.

Rudbeckia fulgida 'Goldsturm' (brown-eyed susan): blooms in late summer for 4 to 6 weeks, dried flowers provide winter interest, requires watering in dry sites.

Sedum spectabile 'Autumn Joy': inflorescence changes gradually from light pink to salmon to rosy russet, uncut heads provide winter interest, grows in almost any soil, never needs dividing, drought tolerant.

Shrubs

Berberis thunbergii 'Crimson Pygmy': compact, deciduous dwarf shrub with rich, dark crimson foliage turning bronze in fall.

Hibiscus syriacus 'Diana': huge, white flowers bloom all summer, requires spring pruning to keep below 6 ft.

Ilex verticillata 'Winter Red' (winterberry): bright red berries borne on bare branches in the winter.

Lagerstroemia indica (miniature crape myrtle): novel color range and bloom time, crinkly-petaled, mauve flowers open in late August and become woody capsular fruits in the autumn, shiny leaves turn coppery.

Trees

Pyrus calleryana 'Red Spire': upright bradford pear with branches angling higher than more commonly grown 'Bradford.'

Zelkova serrata 'Village Green': resistant to Dutch elm disease, upright vase-shaped habit keeps limbs above trunks.

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Lucy Jones is a Longwood Graduate Fellow. Part of her graduate work includes writing a handbook on the educational uses of urban open spaces.

ART FOR CHANGE: Urban Art on the Garden Wall

by Natalie Kempner



photo by David Graham

PHS's Philadelphia Green staff invited the Norris Square Neighborhood Project children to do the mural for the 1982 Harvest Show demonstration sitting garden. The mural is a recreation of their own neighborhood, including their greenhouse behind the white picket fence.

Some 18,000 years ago, deep inside the caves of Spain and southern France, hunter artists first learned to abstract the world of their experience. Using reeds for brushes, and chunks of ochre for color, they painted the animals they knew: wolves, reindeer, bison, horses. And so was born that uniquely, characteristically human ability to create images and symbols that gives human beings awesome control over the environment.

Lest this be deemed a far-fetched introduction to a tale of mural painting in today's Philadelphia neighborhoods, I hasten to submit that when hundreds of city dwellers, mostly kids, translate their urban experience to the weather-worn walls around their gardens and their streets, the artists are demonstrating the same keenness of observation and are moved by the same deep urge to express what is important in their lives as their Paleolithic foreparents. The feat of abstraction is no less startling, nor any less historic, than those first lines in Lascaux.

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"West Kensington Kids Hearken to the Call of Pride!"

"Mural Premiado en la Escuela Miller por Oic!"

"New Mural by Youthful Artists Graces Norris Square!"

"Budding Artists Hard at Work on Murals for the Flower Show."

Such are the headlines heralding the accomplishments that have become a way of life for the children and youth of a long neglected North Philadelphia neighborhood. It was not, then, mere chance that Phildelphia Green, the Pennsylvania Horticultural Society's community outreach program, called on the Norris Square Neighborhood Project's crew of mural experts to produce the mural needed for its 1983 award-winning entry in the Phildelphia Flower Show. Young artists worked a whole weekend on hands and knees to create the cheerful street scene that covered one end of the exhibit's block of city row-houses, designed to illustrate urban greening possibilities.

In the spring of 1977, the Pennsylvania Horticultural Society's 150th Anniversary Horticultural Advancement Project Committee supplied funds to the struggling Norris Square Neighborhood Project (NSNP), an environmental learning center on Norris Square Park, a tree-filled oasis in the midst of deteriorating West Kensington. NSNP had begun in 1973 in the basement of 80-year-old Miller elementary school with the con-



photo by Jean Byall

Children as Flower Show artists. The Norris Square children were invited to do the mural for the Philadelphia Green entry in the Philadelphia Flower Show. No doubt their urban art helped win top honors for the exhibit.



photo by Natalie Kempner

Watching weeds grow in the Asphalt Garden. This area cried out for color and it was here at this barren site that the first mural (Nature in the City) was conceived. (See next page.) ▶

viction that neighborhood children, whose scores on standard tests were the lowest in Philadelphia, could improve their "basics" through exploration of the world outside the classroom and away from television.

By 1977, NSNP had acquired its own building, a 19th century townhouse on the Square, next to the school. Neighborhood exploring had proved that one's living space is exciting and valuable even if parts of it happen to resemble the aftermath of war.

As awareness increased so did efforts to find appropriate ways to affect the quality of the community. Because it is possible to grow up in North Philadelphia as it is today, totally oblivious to the sources of life, the first such specific effort was The Asphalt Garden. Here vegetables and flowers flourished in a tiny plot built on top of the asphalt school

continued



photo by Andrea Raffel

Nature in the City mural covered the drab area behind Asphalt Garden. Former art teacher Andrea Raffel led the Young City Searchers to create this mural.

yard with railroad ties from the nearby abandoned Reading tracks. Gardening children came to understand the relation of seed to flower to fruit and to respect green plants as the basis for life on earth. The big new vocabulary word was "photosynthesis" and everyone learned it.

The garden was just a beginning. Planters designed from plastic bottles and discarded hubcaps hung from fire escapes and fences. Tires, rolled in from vacant lots, became sidewalk gardens. Plant sales, workshops, summer gardens on vacant lots became the order of the day.

When critical eyes were cast on surrounding walls, ways to enhance grey, graffiti-filled spaces with natural life where none could grow were dreamed up. In the spring of 1977, the time was right. Nature in the City – mural number one – was conceived.

nature in the city: the first mural

The PHS funding gave encouragement. An energetic group of 11- and 12-year-old youngsters known as City Searchers were prepared to translate their new urban awareness to the side of the rowhouse bordering the school yard. The Urban Outreach Department of the Philadelphia Museum of Art was available to advise about materials and techniques.

Most crucial, though, was Andrea. Andrea Raffel had left her job as Miller School's art teacher to work with NSNP. Most of us can fantasize wondrous murals on cement walls, but Andrea possesses the magic to make them happen. Not to make the murals, mind you, but to make them happen. She, the artist, rarely wields a paintbrush, but is rather the magician who allows anyone involved to discover and explore unimagined creative potential and so to transform ugliness to beauty.

Andrea and the young City Searchers sketched an overview on a roll of brown wrapping paper taped to the wall. They plastered cracks, rolled on white background, and painted the basic outlines: the big yellow sun, the three tall london planes and the small ginkgo. And then, the area around the mural was roped off and hour after hour, for one sunny April week, children left their classrooms to become Artists at Work. Anyone in the school or neighborhood could contribute. The only prerequisite was that the artist come with a sketch of something that lives or grows in the city. Ladybugs, worms, toadstools drawn on grubby scraps of paper, some no bigger than a postage stamp, were held out for inspection. The only censored item was Sammy's elaborate pterodactyl, designed to be silhouetted against the sun.

Because it is possible to grow up in North Philadelphia as it is today, totally oblivious to the sources of life, the first such specific effort was The Asphalt Garden. Here vegetables and flowers flourished in a tiny plot built on top of the asphalt school yard with railroad ties from the nearby abandoned Reading tracks. Gardening children came to understand the relation of seed to flower to fruit and to respect green plants as the basis for life on earth.

At the week's end, some 400 artists could point with pride to their personal contributions to a prodigious masterpiece of color, style and imagination. Caring for school property increased and spread. During the summer, the neighbors next door painted their house the same bright greens, yellows, blues of the mural. The only graffitti was one chalked-in butterfly.

In May, NSNP won the Environmental Action Award at Schuylkill Valley Nature Center and, in November, the Sol and Rose Foundation O.I.C. Keep Philadelphia Clean and Beautiful Award.

Since 85% of the Norris Square neighborhood population is Hispanic, it was logical that the second mural should be Nature in Puerto Rico. This time, students from Germantown Friends and St. Boniface Schools, participating in a NSNP Exchange Program, worked with Miller kids. They researched the flora and fauna of Puerto Rico and worked together to produce a bright blue sea, alive with marine creatures, leading to the rainbow-covered island luxuriating in a profusion of coconut palms, flamboyant trees, exotic birds and blossoms.

Miller School was closed in 1979 and demolished. Nature in the City and Nature in Puerto Rico adorn the walled-in grounds of a new Senior Citizens' Center. Eight additional murals have been completed with Andrea's magic and a continuing outpouring of group creativity.

The single exception to the usual group process is Nature in Africa, the gift of Remy Lyimo, an artist visitor to NSNP from Tanzania. Remy carried Project ladders and paints five blocks west of



photo by Natalie Kempner

Children from Miller School in West Kensington worked with children from Germantown Friends and St. Boniface's School to research and paint "Nature in Puerto Rico."

Norris Square to design a backdrop for a Philadelphia Green garden on the corner of N. Third Street and Susquehanna Avenue. Teenage dropouts and young adults turned out to plaster and whitewash and to marvel as Remy painted the landscape of his home in Moshi, on the lower slopes of Kilimanjaro. Teenage artist, Kenny West, lives across the street from Remy's mural. The paintings he displays at neighborhood festivals quite often portray rushing streams and snow-capped peaks, which he calls "The View from My Front Window." In North Philadelphia?

Remy's mural inspired his Third Street admirers to get NSNP help for further block improvement to include gardens, a Tot Lot, playground and murals. Every non-rainy Saturday and Sunday in the fall of 1979, 30 to 40 people, tots to grandparents, swept, raked and painted trash barrels, hydrants and telephone poles. Andrea with her wizardry had toddlers flat on their stomachs making designs and teenagers scaling ladders to outline a stack of giant building blocks on a three-story wall they had painted white. Each family in the block chose building blocks in which to make paintings that varied from dandelion plants to basketball stars.

That 2100 block of Third Street was not transformed into a beauty spot. Daily life on Third Street is hard and getting harder. The priority is jobs, not environmental awareness – or even gardens and play lots. The two murals, still bright and ungraffitied, remain the only bits of color in a dismal landscape of forsaken rowhouses, unsettling tributes to brave attempts to turn things around at least a little – memorials to a few weeks of exciting work and high hope.

Wall art has long proclaimed the truths of people in their time and place: drawings on cave walls, paintings in Egyptian tombs, frescoes on the walls of cathedrals, political statements on the buildings of post-revolutionary Mexico and in the halls of New Deal U.S.A.

Today's truth appears on the public walls of our cities more visibly than ever before. Most of it is not art, nor is it intended to be. The messages on our walls, called graffiti, are unwelcome and threatening and we try to wash them away or cover them over. More than one million dollars is spent each year to remove Philadelphia graffiti but, so long as it is the angry, frustrated expression of those with no access to power, it will pervade. Efforts to deny it by covering it up are to no avail. Channeling the energy and talent that produce it, is.

I have never known Andrea to have the slightest problem getting a graffiti expert to opt for paintbrush over spray can. What if the city let this year's graffiti stay where it is, a reminder of urban alienation. And what if the clean-up money were used to let Andrea and her mural artists be the inspiration for a gigantic wall-painting program called Art for a Change! What if every neighborhood could experience the excitement of brightening forlorn grey spaces!

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Natalie Kempner is recipient of the PHS 1976 Teacher of the Year Award; founder, retired director and current board member of the Norris Square Neighborhood Project; member of Philadelphia Green Advisory Board; PHS Council, and vice-chair of PHS Junior Show.



photo by Natalie Kempner

Kim gets a Third Street wall ready for another mural.

Sansevieria parva



Sansevieria 'Pearl Young'



photos by Franklin J. Niedz

Sansevieria trifasciata medio-picta



Plants I Really Like – Miniature Sansevierias

by Franklin J. Niedz



Sansevieria trifasciata 'Hahnii.' Top row, left to right: 'Loops Pride,' 'Gilt Edge,' 'Aureo-striata.' Bottom row: 'Crosby's Marginata,' 'Silver Frost,' 'Dwarf Silver.'

growing in popularity

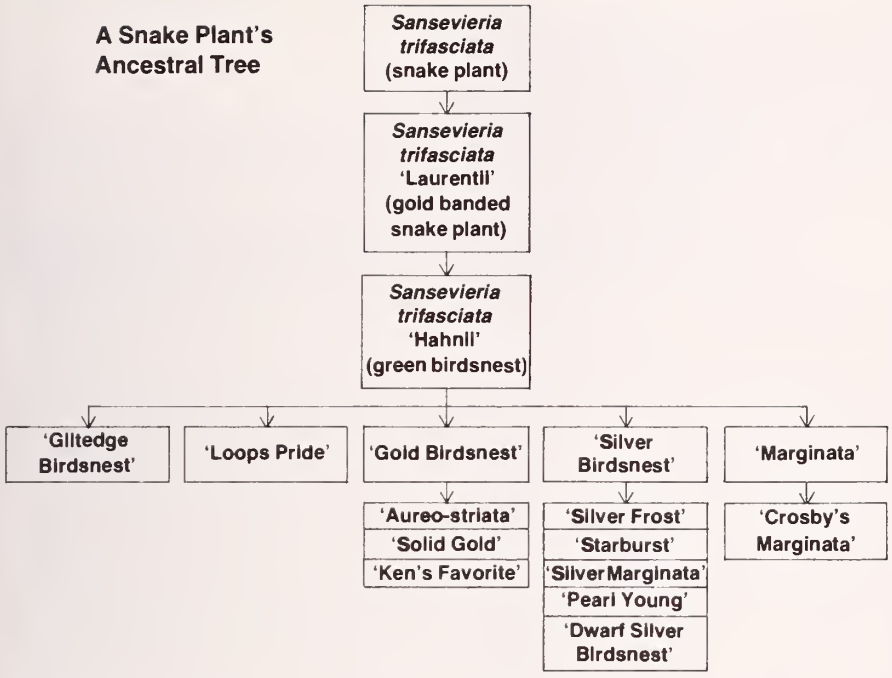
The popularity of sansevierias in general is increasing as more articles appear in horticultural publications and more species and named cultivars become available from specialty growers and collectors.

For many years the common snake plant or mother-in-law's-tongue, *Sansevieria trifasciata,* and the gold-edged form, *Sansevieria trifasciata* 'Laurentii,' were the only sansevierias readily obtainable in the marketplace.

the hahnii miniatures

It was not until the early 1940's that the birdsnest or rosette type sansevierias began to appear through a history of mutations. *Sansevieria trifasciata* 'Hahnii,' commonly called the green birdsnest, was the first of what can generally be called miniature sansevierias. (See snake plant tree chart for lineage.) The 'Gold Birdsnest' and 'Silver Birdsnest' were the next two miniatures to appear on the scene. These two, along with the green birdsnest ('Hahnii'), were patented and have spawned virtually all subsequent miniature cultivars. The miniatures generally are flat rosette shaped plants ranging between 4 in. and 6 in. across and not usually over 3 to 4 in. tall.

In almost all cases, the newer cultivars are smaller and more colorful and make excellent windowsill specimens. One can maintain a collection of individual specimens in small bonsai type containers in an area measuring only a couple of square feet. The average size



of the newer cultivars is approximately 4 in. across. The colors are usually combinations of yellow, cream or white on a dark green or greyish background, many times with a silvery grey frosting.

Rosette type sansevierias are best grown individually to exhibit their full beauty. As young plants develop in the form of offsets next to the parent plant,

Not only are miniature sansevierias very attractive plants, but they are almost indestructible and require no special care.

they should be removed and potted separately.

culture

Not only are miniature sansevierias very attractive plants, but they are almost indestructible and require no special care. East or west facing windows are ideal, but they can easily survive under full sun or in a northern exposure and do equally well under grow lights.

They tolerate 55° with no problem although some of the yellow forms seem to like it a little warmer. They can go bone dry for days with no apparent setback. Underwatering is better than overwatering. Of the hundreds I have grown, I have lost only a couple due to overwatering, and they were difficult species.

Any fertilizing program is all right. You can use either osmocote 20-20-20 pellets every three months or a dilute 15-30-15 fertilizer every time you water the plants. Lack of fertilizer will diminish the rich colors inherent in the plant.

I have never found any kind of insect on any sansevieria and have only read about root nematode problems when the plants are grown outdoors in Florida.

named cultivars

'Silver Frost' is a stunning thick-leaved rosette miniature with silvery-grey feathery streaks running down the leaf with an occasional gold stripe. It offsets readily but is somewhat slow growing. Another cultivar is 'Starburst,' which has thick dark-green leaves with a silver and cream embossed center.

The almost black-green 'Loops Pride' is quite different from the above. It is much sought after because of its unique color but is seldom available as it offsets only rarely.

'Giltedge Birdsnest' is a green birdsnest with a thin gold edge. 'Marginata' is similar but has a much wider creamy-yellow edge. 'Aureo-striata' is another rare cultivar that has gold edges of varying widths from leaf to leaf with silvery-grey stripes and banding across the leaf on a dark green background. 'Crosby's Marginata' is similar to 'Aureo-striata' but with creamy yellow in place of the gold.

Choice and seldom available is the 'Silver Marginata,' which is smaller than the 'Silver Birdsnest' but with yellow-edged leaves. Even newer is a selected cultivar 'Pearl Young,' which is smaller in size. Also quite new is a 'Dwarf Silver Birdsnest,' which is half the size of its parent, 'Silver Birdsnest.'

small species

In addition to the rosette type birdsnest sansevierias, several sansevieria species are not only quite attractive but are extraordinarily slow-growing and hence remain quite small for at least a couple of years. Some species have papery-white edges, some red, and some have both white and rust stripes along the leaf edge. Several of the species have leaves that are as thick as they are wide. Little wonder there's growing interest in sansevierias. Species that can be grown as miniatures are *S. aethiopica, S. gracilis, S. hyacinthoides, S. intermedia, S. pinguicula, S. patens, S. powellii, S. singularis, S. suffruticosa* and *S. transvaalensis.* Unfortunately, they don't have common names, but do not let that deter you from seeking them out as many are quite attractive.

If you want to progress to a slightly larger sansevieria species, *S. parva* will attain a 10-in. height and send out stollens with plantlets on the end similar to a spider plant. The variegated form shown is quite rare and quite beautiful.

For those who wonder about the very latest sansevierias among collectors, the new variety *S. trifasciata mediopicta,* which appeared as a spontaneous mutation in the collection at Ohio State University, is also pictured here. Although not a 'Hahnii' miniature it is slow growing and can be accommodated in a 10-in. space.

Sources

Anything Grows Greenhouse
1609 McKean Road, Box 47
Spring House, PA 19477
Catalog $1.00

Glasshouse Works
10 Church Street
Stewart, OH 45778
Catalog $1.50

Grigsby Cactus
2354 Bella Vista
Vista, CA 92083
Catalog $2.00

●

Franklin J. Niedz is a rare plant collector. He is a long time member of PHS and a founding member of the International Lilac Society. This is his first contribution to *Green Scene.*

Reviewing Some Unusual, Selected Catalogs

by Peter Loewer

As I write this in December the wind is blowing at 50 mph at the Scranton Airport and up to 70 mph in parts of New England. By the time you peruse the new spring catalogs that follow, the back of winter will be broken and the gentle rains of early spring might be falling damp upon the ground. And what catalogs there are! The following 16 can bring the garden world to your back yard with new and different flowers and plants for both indoors and out. With the speed of today's carrier services and the excellent packing methods developed by the nurseries cited, there is no reason to limit choices to the local lineup of marigolds, geraniums, and petunias – not when there is a world of horticulture out there.

Alpenglow Gardens maintain their nursery and business in British Columbia, Canada. Plant orders are driven a distance of 40 miles to Blain, Washington for a speedy trip throughout the United States by Air Parcel Post. Their catalog is small but select: hardy alpines, perennials, and shrubs abound. Once again this year, they remain my only known source for *Juncus effusus* 'Spiralis,' a cultivar of the rush family that spirals upward like a small, tight and green corkscrew (hardy only to the southern part of Zone 5). For the rock garden look at *Betula nana,* the dwarf Arctic birch that stays shrublike and grows no more than 2 ft. high.

The Banana Tree is a Pennsylvania firm that specializes in seeds both exotic and tropical, all of interest, and a few frankly bizarre. For the houseplant enthusiast try growing one of the 25 varieties of bananas: for a small room *Musa cavendishii (M. acuminata)* topping an average 6 ft. seems to be the best, but if blessed with a warm cathedral ceiling try 'Apple' with an expected height of 15 ft. and thought to be the original fruit in the Garden of Eden. For the vegetable garden they carry a full line of Chinese vegetable seeds and a number of selected cold hardy trees and shrubs.

Kurt Bluemel, Inc. is the largest source of ornamental grasses for the garden in the United States. His selection of plants is truly impressive. The catalog lists well over 100 different species and cultivars of grasses, sedges, and a few rushes. For those with a large outdoor garden, a specimen planting of the giant reed grass *(Arundo donax)* will have garden neighbors buzzing; or in the rock garden, three or four plants of *Deschampsia flexuosa* 'Mueckenschwarm' with its beautiful and pale, starlike blossoms that float on almost invisible one-foot stems, will delight year after year.

Coenosium Gardens is another Pennsylvania native: nestled in the Lehigh River Valley it is the home of the newly-formed American Conifer Society and also one of the finest collections of choice and often rare evergreens in the country. All of the plants listed in the catalog are available either as fresh grafts or rooted cuttings with a few available at the nursery in larger sizes. The collection of over 36 types of white pine *(Pinus strobus)* is enough to give pause to the most sophisticated gardener while one glimpse of the variegated sweet gum *(Liquidambar styraciflua variegata)* will force you to add one to your collection. The catalog gives complete cultural instructions. Visitors are welcome.

Country Hills Greenhouse represents an association of collectors who first grew plants as a hobby but now have entered into the world of business with a catalog that includes literally hundreds of tropical and semi-tropical offerings. If you are seeking a new or unusual houseplant or something to brighten up the patio for the sumnmer months, here is



Zone Chart

Reprinted with permission from *Holbrook Farm & Nursery Catalog,* Fletcher, NC, fall 1983.

the place to look. Would you believe they list over 50 different varieties of hoya? Not to mention four whole pages devoted to peperomias. They also feature many ferns and the ultimate collection of sansevieria: over 90 types. (See page 26 for story about sansevieria.) There are many fine line drawings throughout.

The Cummins Garden is located in nearby Marlboro, New Jersey. Azaleas, rhododendrons, and dwarf evergreens share listings with favored companion plants, scaled to the small garden. Two of my favorite dwarf evergreens are listed: *Juniperus squamata* 'Blue Star,' a cultivar that glows steel-blue most of the year until it turns to a deeper shade for fall and *J. procumbens* 'Nana,' one of the finest groundcovers around. Look, too, for the six boxwood varieties including the charming 'Kingsville Dwarf.' The Garden also stocks many varieties that are not included in the catalog.

Far North Gardens carry a phenomenal number of seeds from houseplants to herbs: rare native wildflowers including the beautiful double bloodroot, *Sanguinaria canadensis* 'Multiplex,' that looks more like a waterlily out of water than a woodland native and a complete

continued



Primula vulgaris 'Gold Lace'

photos by Peter Loewer



Phlox paniculata 'World Peace,' a summer flowering phlox



line of transplants of the famous Barnhaven primroses. Don't miss the selection of seeds meant for prairie planting or the Collector's Seed List that features plants you will not find anywhere else. They also feature the beautiful Victorian jewel, the goldlaced polyanthus *(Primula vulgaris* 'Gold Lace'), a flower to brighten the most elaborate spring garden.

The Holbrook Farm & Nursery publishes both a spring and fall catalog. Each includes spring bulbs, perennials, dwarf conifers, wildflowers, ferns, and choice heaths and heathers. Holbrook stocks the new *Lamium* cultivar 'Beacon Silver' that I first met in the seed exchange of the Hardy Plant Society. This is an excellent groundcover especially for a shady spot where its shining silver leaves take on an extra luster; the bright deep-pink flowers are an extra added attraction. The collection of summer-flowering phlox is very fine and the wildflower list includes the seldom-seen bellwort *(Uvularia perfoliata)* with its dainty yellow blossoms that nod gracefully towards the earth.

Hortica Gardens is located in California but United Parcel makes it a short trip to Pennsylvania. Hortica's collection of named cultivars of azaleas numbers in the hundreds and runs from small plants up to imported and established whip-trained specimens. Can any gardener resist such names as 'Kanuma no Hikari' (variable azaleas of shades of white with orange-red) or 'Yama no Hikari' (salmon to red-variegated flowers, some salmon edged). And don't miss the large selection of Japanese maples *(Acer palmatum)* especially the wonderful laceleaf forms, that include 'Ruby Lace' and 'Crimson Red.' On top of these are the many selections perfect for bonsai training.

Lamb Nurseries are located in Washington state and carry a large selection of hardy perennials and alpine plants. Their catalog is notable for the pronunciation guide that accompanies all entries so there is no excuse to stumble over *Aconitum* (Ak-oh-ny'-tum) or *Oenothera* (Ee-no-thee'-ra). One whole page is devoted to the violets: the cucullata type, the hardy fragrant varieties and two novelty types, 'Parma' with double fluffy flowers of rich violet-blue and 'Swanley White' snow-white doubles. Lamb continues to feature the garden show-stopper, the hardy calceolaria or slipperwort, *Calceolaria* 'John Innes,' featured in *Green Scene* of May/June, 1980. This charming flower is hardy to Zone 5 with protection.

Las Pilita Nursery is a fascinating nursery that specializes in plants native to California. And what could that mean to a denizen of Pennsylvania and the surrounding territories? Well, remember that California is a big state and runs the climatic gambit from a cold Zone 5 to a comfortable, sometimes torrid 10. There is bound to be an unusual plant for your back yard alone. The new catalog will list 350 species and, in addition to complete cultural instructions, also include medicinal and edible plants among those described. Along with plants, Las Pilitas lists many seeds.

Rocknoll Nursery is an old friend from Ohio. It's the work of a group of garden friends who founded the original Ohio Rock Garden Society some 50 years ago. Their collection includes the beautiful autumn anemones, *Anemone vitifolia* 'Robustissima,' from the Himalayas and hardy to -30°F, beginning to flower in August and continuing through fall. Or how about a special creeping phlox for spring: *Phlox subulata* 'Sneewithchen' has tiny white flowers that sparkle like snow or 'Millstream Juniper' is covered with small blue blossoms each with a golden eye. One of Rocknoll's specialties is the dwarf blue-grass daisy, *Coreopsis auriculata* 'Nana' with 6-in. to 8-in. tufts of bright orange flowers that was discovered years ago in the hills behind Maysville, Kentucky. If all goes well they will be offering a seed list of unusual and rare plants in the near future.

Siskiyou Rare Plant Nursery is now entering their 21st year of bringing unusual alpine and other dwarf, hardy plants to the specialized woodland and rock garden. In addition to the hundreds of plants listed – and full cultural instructions are included – their catalog contains concise plant lists for special purposes featuring: easy-to-grow, alpine house culture, silver and grey foliage plants, plants for troughs and containers, groundcovers, woodland ferns, and plants mostly at home in peat beds. Their selection of saxifrages numbers in the 70s and has the silver and encrusted types along with the more challenging tufted and cushion forms. For those living in a mild winter area of 0°F and above, experiment with one of the hebes, charming veronicas from New Zealand.

Andre Viette Farm and Nursery is located in Virginia where their fields have one of the largest collections of perennial flowers in the eastern U.S. featuring over 1,000 varieties of iris, oriental poppies, peonies, daylilies, ornamental grasses, and unusual plants for sun and shade. They are the only supplier (to my knowledge) of that marvel of the unique, the night-blooming daylily *(Hemerocallis citrina)* opening its sweetly-scented lemon-yellow flowers in late afternoon when all the others are getting ready to call it a day. And don't miss the two pages of tall bearded iris available in more colors than Joseph's coat. Visitors are welcome.

Winterthur Museum & Gardens are familiar to most Pennsylvanians but few may know that offspring of many rare and unusual plants in the gardens are offered for sale in the garden shop and by mail in the new catalog, Gift and Garden Sampler. If looking for a really rare rhododendron or azalea try one specially propagated from the collection. They list the highly unusual *Rhododendron mucronatum* 'Winterthur,' a sweet smelling lavender flower, bud hardy to -0°F and plant hardy to -10°F. The gardens are open to the public. Plants ordered will be shipped in season or visitors to the shop may purchase them there.

Woodlanders, Inc. is located in the hills of South Carolina where they grow and ship trees, shrubs, vines, herbaceous perennials, ferns, and woody lilies – both hardy and exotic – around the country. Their descriptive catalog (number 2) is brought up-to-date with new price lists. Selections are carefully

noted as to hardiness. Aiken is the nearby town and is in USDA Zone 8 – only 20°F more than a large percentage of Pennsylvania – and that means early orders as plants snap out of dormancy at high speed, usually by February's end. Among featured plants are the twistleaf yucca *(Yucca rupicola)* easily distinguished by its curled or twisted broad and dark-green leaves or river oat grass (now called *Chasmanthium latifolium* but sometimes called *Uniola)* simply one of the most attractive grasses to be found for any garden.

Catalog addresses

Alpenglow Gardens. 13328 King George Hghwy., Surrey, British Columbia, Canada V3T 2T6. Catalog costs $1.00

The Banana Tree. 715 Northampton St., Easton, PA 18042. Catalog is 25¢ coin or stamps.

Kurt Bluemel, Inc. 2543 Hess Road, Fallston, MD 21047. 50¢

Coenosium Gardens. 425 N. Fifth Street, Lehighton, PA 18235. $1.00

Country Hills Greenhouse. Route 2, Corning, OH 43730. Catalog is $2.50.

The Cummins Garden. 22 Robertsville Road, Marlboro, NJ 07746. $1.00

Far North Gardens. 16785 Harrison, Livonia, MI 48154. $1.25

Holbrook Farm & Nursery. Route 2, Box 223B, Fletcher, NC 28732. $2.00

Hortica Gardens. P.O. Box 308, 6309 Green Valley Rd., Placerville, CA 95667. 50¢

Lamb Nurseries. E. 101 Sharp Ave., Spokane, WA 99202. 50¢

Las Pilitas Nursery. Star Route Box 23x, Santa Margarita, CA 93453. $3.00

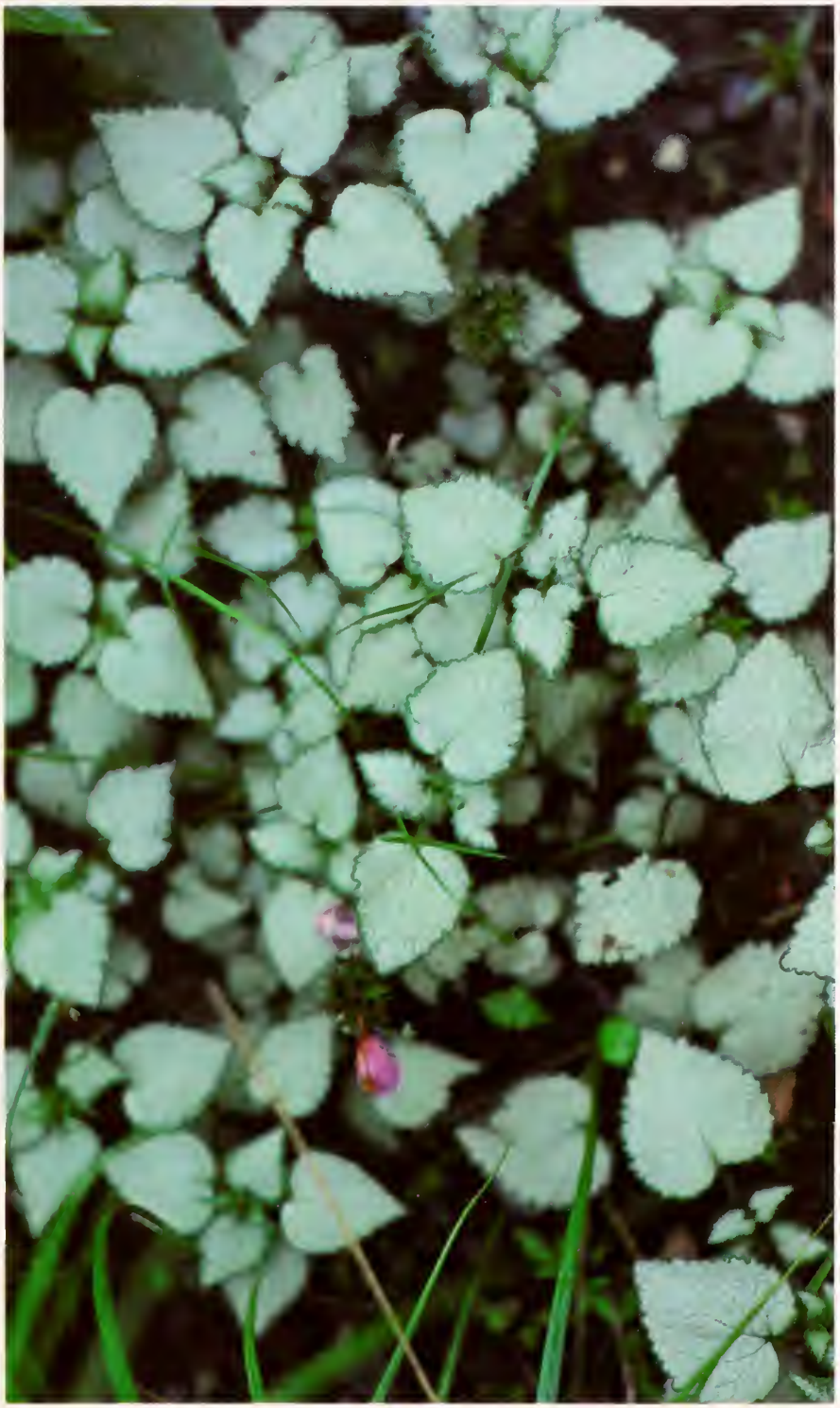
Rocknoll Nursery. 9210 U.S. 50, Hillsboro, OH 45133. 40¢ coin or stamps.

Siskiyou Rare Plant Nursery. 2825 Cummings Road, Medford, OR 97501. $1.50

Andre Viette Farm & Nursery. Route 1, Box 16, Fishersville, VA 22939. $1.00

Winterthur Museum & Gardens. Winterthur, DE 19735. $1.00

Woodlanders. 1128 Colleton Avenue, Aiken, SC 29801. SASE business size with 37¢ postage for price list. Catalog is $1.50



Lamium maculatum 'Beacon Silver'

●

Peter Loewer is a frequent contributor to *Green Scene*. He has written and illustrated six books and illustrated one by Bebe Miles *(Wildflower Perennials for Your Garden)*. Loewer's *Month by Month Garden Almanac for Indoor and Outdoor Gardening* was published in the fall of '83, by Perigee of the Putnam Publishing Group.

PEST CONTROL: *Some Strategies – Part I*

Even the most skilled and experienced gardeners among us periodically run up against plant pest problems. They're a fact of life. The reason is a basic ecological relationship between the autotrophic green plants and the heterotrophic organisms that make up the rest of the living world. Autotrophic refers to the ability of the photosynthetic green plants to produce complex, energy-rich carbohydrate from simple inorganic substances available in the atmosphere. The heterotrophs, on the other hand, cannot produce their own food and are dependent, either directly or indirectly, on plants. Man is a heterotroph, and so are all animals, insects, fungi, bacteria, and viruses. For this reason we often find ourselves competing with other organisms for green plants and their products.

The competition between man and pests is often for food crops. Estimates of pest damage to these crops are in the millions of dollars annually. Another expression of the competition involves ornamental crops in which losses are measured in aesthetic terms. The pests are many: mammals such as raccoons and squirrels, birds, insects and microorganisms. Only a few species in each category, however, deserve the label pest. Many species are vital links in the producer-consumer-decomposer cycle by which organic residues are broken down and recycled again and again. In each host-pest relationship the threshold level of damage varies. Evaluating the damage thresholds in ornamental plants can be complex because aesthetic judgments are subjective. In food crops, the direct impact of pests on crop yield is more easily measured.

To evaluate the potential impact of pests we must consider several factors: the stage in the life cycles of both pest and host; the number of generations the pest organism produces each year; the population levels of parasites or predators that could affect pest levels. Another consideration, especially relevant in the case of long-lived trees and woody ornamentals, is the condition of the host plant. A plant already weakened by unfavorable environmental conditions or other insect or disease problems is often susceptible to subsequent attacks.

All too often, however, dogwood is planted as a specimen tree in the middle of a suburban front yard in an open, sunbaked setting. Research conducted at the University of Kentucky has shown that dogwood trees growing in full sun are three times more likely to be attacked by borers than those growing in full shade.

dogwood pests

That, in fact, is exactly what happened to the native flowering dogwood *(Cornus florida)* in this area. Weakened by several successive years of environmental extremes, including record low winter temperatures and alternating periods of drought and excessive moisture, the trees have become susceptible to a fungal pathogen, which is not normally a severe problem. Under the circumstances, the disease, dogwood anthracnose, which is usually confined to the leaves, has spread to kill twigs, branches and even entire trees. The drought we experienced this past summer will probably exacerbate the dogwoods' problems. Any effort to protect valuble specimen trees will require fungicide sprays early in the season when the leaves are just expanding and again several times at ten day to two week intervals. Maneb is the recommended fungicide.

Dogwood borers are another stress-related problem. Although dogwood is a native species in eastern Pennsylvania and presumably well adapted to local conditions, it is an understory tree in the forest. In its native habitat it is shaded by taller canopy species and buffered from extremes of heat and drought by the rich, moist humus-rich woodland soil. All too often, however, dogwood is planted as a specimen tree in the middle of a suburban front yard in an open, sunbaked setting. Research conducted at the University of Kentucky has shown that dogwood trees growing in full sun are three times more likely to be attacked by borers than those growing in full shade. The presence of trunk wounds also increased the probability of borer attack. The dogwood borer is the larval



Dogwood anthracnose, mild symptoms

Ascochyta, a fungus that causes leaf spot on the dogwood.





Crabapple scab causes premature defoliating.

photos by Ann F. Rhoads

by Ann F. Rhoads

stage of a clearwing moth *(Synanthedon scitula* Harris). The same team's research shows that a single generation of borers emerges as adults ready to lay eggs on the bark of suceptible trees in late May (Potter and Timmons, 1983). After hatching, the larvae burrow their way into the cambium area where the damage they do can be fatal.

Attempts to control dogwood borers should be primarily preventive. Planting sites should be chosen to minimize environmental stress. In the case of established trees, cultural practices such as mulching and avoiding unnecessary bark wounds can be helpful. If sprays are used they should be timed to coincide with adult emergence and egg laying in late May and applied only to the trunk and larger limbs.

the best prevention

Given a choice, most gardeners would rather avoid plant pests. That can be accomplished often, by selecting a resistant cultivar of the desired plant species. Flowering crabapple, which is affected by several potentially severe diseases, is a good example. Apple scab, although not fatal, can leave a tree nearly leafless by mid-summer; another disease, fire blight, can cause dieback of twigs and branches. In addition, cedar apple rust and frog eye leaf spot affect the leaves and powdery mildew attacks the young shoots. Dr. Lester Nichols formerly of Pennsylvania State University spent 20 years evaluating hundreds of cultivars of flowering crab for susceptibility to the five diseases described above. He has identified crabapple cultivars with moderate to high levels of resistance to all five pests as well as those that have outstanding displays of flower and fruit. There is no longer any excuse for trees to be defoliated by disease by mid-summer. Unfortunately, however, many nurseries continue to carry cultivars like *Malus* 'Hopa,' which are among the most susceptible to apple scab. Several local nurseries have begun to carry some of the resistant types and no doubt more will do so in response to consumer demand. Resistance, it must be stressed, is rarely total, but on resistant trees pest populations rarely reach threshold levels. The home orchardist should also be aware of recently released apple varieties with resistance to all or some of the diseases mentioned (see table on p. 34). Of course selecting a disease resistant cultivar doesn't mean you won't have aphids or canker worms or tent caterpillars descend on your tree.

sycamores

Another tree disease that can be avoided by using a resistant cultivar is sycamore anthracnose. The severity of an anthracnose outbreak is influenced by the weather. A cool, moist spring often results in severe blighting of young leaves and shoots on sycamore and London plane trees. Despite the drastic appearance of affected trees, the disease is not fatal. The native sycamore *(Platanus occidentalis)* is very susceptible, whereas the oriental plane tree *(P. orientalis)* is resistant. London plane *(P. x acerifolia)*, a hybrid between the two, at one time had moderate resistance to the disease but much of that has been lost through repeated backcrossing with the native species. One cultivar now on the market,'Bloodgood,' retains a high level of resistance to anthracnose. Trees planted adjacent to the Visitor Center at Independence National Historical Park in Philadelphia provide a visible example of the benefits of resistance to sycamore anthracnose. Frequently, when London plane trees throughout the city are rendered nearly leafless in May and early June, the Visitor Center trees, which are 'Bloodgood,' sport a full crown of healthy green foliage. Frank Santamour, plant geneticist at the U.S. National Arboretum in Washington, has redone the *P. occidentalis* - *P. orientalis* cross and selected new resistant progeny for clonal propagation. These should be available within a few years.

vegetables and flowers

The potential for incorporating pest resistance should also be considered when planning for plantings of vegetables and annual flowers. Most gardeners know to look for tomato varieties with the VFN designation indicating resistance to verticillium wilt, fusarium wilt and nematodes. Verticillium wilt also

continued

Crabapple: cedar apple rust



Early symptoms of crabapple scab





Sycamore anthracnose. Blighting of young shoots and overwintering canker.

affects eggplant. Resistant types, however, have not yet been found despite intensive efforts by vegetable breeders.

Several virus diseases of greenbeans can be avoided by using virus resistant types such as 'Greensleeves,' 'Topcrop' or 'Tendercrop,' all of which are readily available. In the case of virus infections, chemical controls are not available and the only useful strategies are to use resistant varieties or to rogue infected plants to prevent spread.

In recent years we have also seen the introduction of varieties of cucumber and canteloupe with resistance or tolerance to mosaic, powdery mildew and fusarium wilt. Resistance to tobacco mosaic virus is available in green peppers. An important breakthrough for flower growers was the development of zinnia cultivars, the ruffles hybrids, with resistance to powdery mildew.

With the current emphasis on reducing pesticide use, plant breeders are stepping up efforts to develop resistant cultivars in many species. Seed catalogs are a good source of information. Careful cultivar selection can greatly reduce the needs for additional pest control strategies and result in a more rewarding garden.

■ ■ ■

In the May/June issue of *Green Scene* Ann F. Rhoads will write about "Putting Beneficial Insects to Work for You."

References

"Factors affecting predisposition of flowering dogwood trees to attack by the dogwood borer." Daniel A. Potter and G. M. Timmons. *Hort Science,* 16(5): 677-679. 1981.

"Flight phenology of the dogwood borer and implications for control in *Cornus florida*." Daniel A. Potter and G. M. Timmons. *L. J. Econ. Entomol.* 76(5): 1069-1074. 1983.

The Flowering Crabapple: A Tree for All Seasons. James E. Brewer, Lester P. Nichols, Charles C. Powell and Elton M. Smith. NE223, NCR78. Cooperative Extension Services of the Northeastern States. 1979.

●

As plant pathologist at the Morris Arboretum, Ann F. Rhoads focuses on pests and diseases in an urban setting. She claims her country garden in Bucks County is *reasonably* free of pests.

Disease Resistance and Growth Characteristics of Selected Cultivars of Flowering Crabapple

Cultivar	Growth Form	Flowers	Fruit	Disease Resistance: Scab	Cedar-Apple Rust	Powdery Mildew	Fire Blight
Malus sp. cv. Beverly	upright	white	small, red	x	x	x	x
Malus sp. cv. Centurion	narrow upright	rose red	5/8", red	slightly susceptible	x	x	x
Malus sp. cv. David	rounded	white	1/2", scarlet	moderately susceptible	x	x	slightly susceptible
Malus sp. cv. Dolgo	upright spreading	white	1 1/4", red	slightly susceptible	x	x	slightly susceptible
Malus floribunda	spreading	white	3/8", red-yellow	slightly susceptible	x	slightly susceptible	moderately susceptible
Malus sp. cv. Ormiston Roy	upright spreading	pink	3/8", yellow	slightly susceptible	slightly susceptible	x	moderately susceptible
Malus sp. cv. Robinson	upright spreading	crimson	5/8", red	slightly susceptible	x	x	x
Malus sargentii	spreading	white	1/2", red	x	x	x	moderately susceptible
Malus sargentii cv. Tina	dwarf (5')	white	small, red	x	x	x	x
Malus sp. cv. Professor Sprenger	upright spreading	white	1/2", orange-red	x	x	x	x
Malus zumi cv. Calocarpa	upright	pale pink	3/8", red	slightly susceptible	x	slightly susceptible	very susceptible

x = resistant

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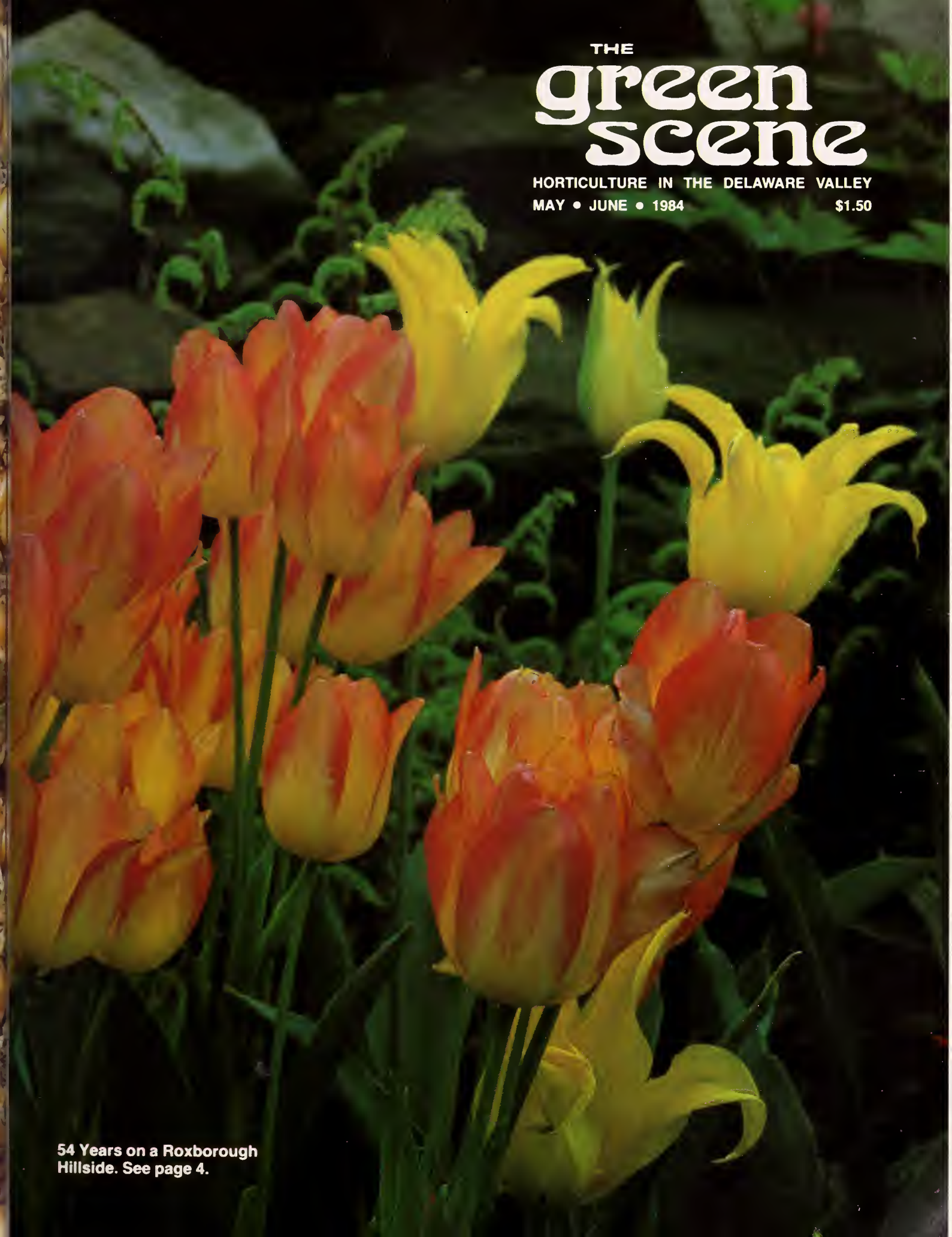
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Rich, golden glow of onions drying in August sun. See page 4.



THE green scene

HORTICULTURE IN THE DELAWARE VALLEY

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54 Years on a Roxborough Hillside. See page 4.



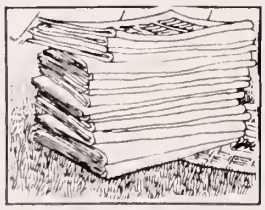
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photo by Margaret Bowditch

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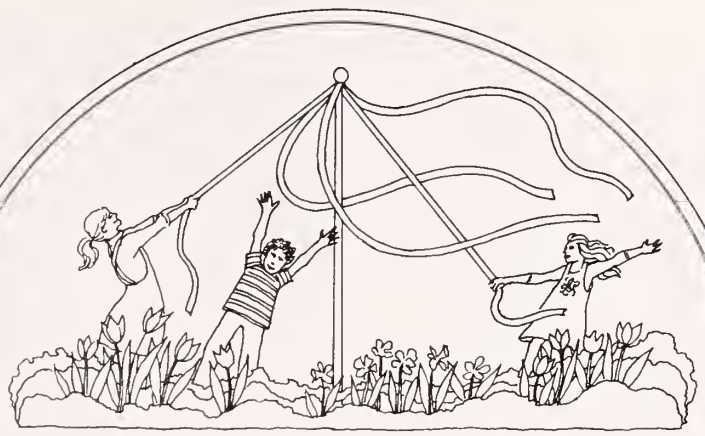
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The Scents of May, The Dances of May

Imagine my delight in December when out of an envelope containing a manuscript fell two nicely scented lumpy ziplock bags. After reading the manuscript I learned that one bag contained a sachet and the other a potpourri. Too bad, I thought, that the Christmas issue had just come off the press. These would make excellent gift suggestions.

When I reconsidered, I realized that in these days when chemicals are king, our readers would enjoy reading about the lost art of sachets and potpourris in May and June when they could go out and collect blossoms containing the loveliest natural scents from their gardens.

As much as that manuscript pleased me, however, it was the author's letter that pierced my deskbound wintery day's inwardness. First, Emmeline McIlvain, a stranger, had signed her letter "Affectionately." I knew the warm feeling was addressed not just to me as the editor, but to all the contributors, to the Society members and to the readers who would receive her gift of a manuscript. Here's what she wrote to all of us:

Enclosed is an article on a subject that has interested me for many years. I thought it might be interesting to you and to your readers too. At any rate I had fun writing it and send it on to you as thanks for all the pleasure I have had from reading the magazine and from being a member of the Horticultural Society for 36 years. I became a Life member in 1947. My card is signed by my dear friend Estelle Sharp. I have done so little for the Society but will try to make it up in the future.

Wouldn't it be wonderful if every editor received letters like that; if every organization was filled with members like that. Anyway, the manuscript was thoughtful and intelligent and appears on page 8. So get out your orris root and trip out to the garden.

I have come to believe that this kind of sharing is instinctive, if not downright genetic, among gardeners. It's reflected in the ceremonies of the season: last May, while tripping around from garden to garden, I scooted up to Morgantown to Jane Lennon's May Day party. It was a cross-generational affair, which made everything seem even more wonderful. We thought more of our members might welcome the excuse to bedeck themselves with flowery wreaths and to break loose. Of course, not all of us can coax out the goats and chicks and lambs, but we can plug some woodruff in the May wine, plunk on our wreaths and dance around the pole. This day of abandon will no doubt make many subsequent garden chores a pleasure. A recipe for a May Day party is on page 9.

Happy May Day.

Jean Byrne, *Editor*



photo by Mary Lou Wolfe

Stone walls constructed by Redwood Barker provide raised display for Georgette tulips underplanted with Japanese painted ferns.

54 YEARS ON A ROXBOROUGH

by Mary Lou Wolfe

"It started with five little sedums put in my hand by Mrs. Arthur Hoyt Scott when I first visited her garden," Dickie Barker told me. Now these "hens and chickens" *(Sempervivum* spp.) have become flocks that edge long flower beds and fill rocky crevices. When the Barkers moved 54 years ago to a high hill in rural Roxborough their property included a stark old farmhouse and distant fine barn, a venerable apple tree, a chicken house and an ugly decaying barn behind the house. Off the kitchen end of the house, outdoor cellar steps led to a cool cave that served for five years as their refrigerator. From the back door, their 30 acres of land sloped off toward the Schuylkill River with breathtaking views of distant Philadelphia. Today on a clear day one can see tall buildings on City Line, and cars crawling on the Schuylkill Expressway. How I wish I had seen it 54 years ago!

"Uncle came trotting up the hill on horseback and gave Barker all the tools." Mrs. Barker speaks with just the slightest accent that hints of her Swiss origins. She grew up, however, on a ranch in the lettuce country of Salinas, California where she met young Redwood Barker in a hardware store. The fusion of his background of Quaker husbandry and her Swiss energy transformed those 30 acres of hayfields. Mr. Barker knew what to do with "Uncle's tools," and Mrs. Barker quickly switched from California ranch gardening to layering rhododendron and rooting boxwood. One special shrub that she can see now from her kitchen porch reminds her of the one that grew near the school house in Salinas. It's a tamarisk and not entirely satisfactory because its pale pink branches are so brittle, but full of nostalgic memories and worth the pruning effort it requires.

One of the first projects the Barkers tackled was blocking out the ugly, shabby barn behind the house by planting wisteria. The wooden barn structure was eventually removed leaving the stone foundation that forms the first of a series of outdoor rooms bordered by low stone walls. On the hills not far from the Barker's land, old stone dwellings were crumbling and abandoned. With permission from the owner, Mr. Barker and "Uncle's tools" gave those stones a new life as handsome walls – what seem now like miles of stone walls. Considerable artistry went into their construction, and the fine, weathered local stones define the raised beds of Mrs. Barker's gardens. In the protected foundation of the old barn now festooned with ancient wisteria, grow miniature roses, coral bell, maidenhair fern and tree peonies all bordered by a 20-year-old foot high border of *Buxus microphylla.* Until the terrible cold of 1976 a pink camellia and a pomegranate *(Punica granatum)* flourished there.

a spring garden

The Barker garden is designed as a spring garden, and I have been privileged to visit it each spring for a number of years.* Aside from its breathtaking site, the lasting impression I carry away is of the superb use of color. Thinking of this skill, I delved into Gertrude Jekyll's *Colour Schemes for the Flower Garden*** (Country Life, London, 1914) and found this definition of gardening color sense:

*Barker's garden was on the PHS Chestnut Hill area garden tour in May, 1982.

**Available from PHS Library.



photo by Mary Lou Wolfe

This cellar door led to a cool cave that served as the Barkers' earliest refrigerator.

Where an ugly barn once stood, wisteria now spills over the remains of the old stone foundation.

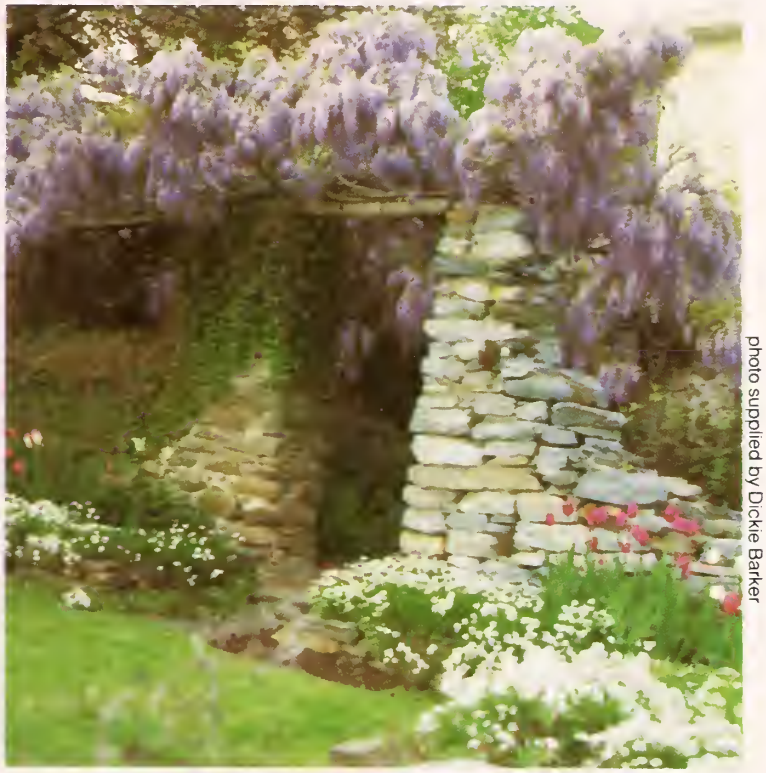


photo supplied by Dickie Barker

HILLSIDE

"It is to place every plant or group of plants with such thoughtful care and definite intention that they shall form a part of a harmonious whole, and that successive portions, or in some cases even single details, shall show a series of pictures."

Reading this I remembered my favorite view looking through white dogwood blossoms to a fine lawn and a low wall underplanted with sedums and blue forget-me-nots. White violets, *Iberis* and *Aubrieta* grew from crevices and above, on a blanket of silvery Japanese painted ferns *(Athyrium goeringianum),* was a bold planting of yellow/pink Georgette tulips.

Jekyll says,

"One is always watching and trying for good combinations of colour that occur or that may be composed."

Dickie Barker has found these combinations and has developed techiques to make the color choices work. She soon discoverd that rodents enjoy her tulip bulbs so she has devised covered wire cages 4 ft. long x 12 in. wide and 8 in. deep for each year's planting. She

continued



photo by Margaret Bowditch

The Barker garden is designed as a spring garden. Here azaleas are framed by pink and white dogwood. Behind boxwood hedges, tulips repeat the azalea's rosy pink hues.

replaces these bulbs annually giving the spent bulbs to favorite institutions for replanting or settling them into a propagation area for another year's bloom for cutting. Since tulips continuously planted in the same place can develop blight *(Botrytis tulipae* – also called botrytis blight), the 500 or more bulbs planted each year are dipped in a Benlate solution before planting. This fungicide solution is then poured on the tulip bed area because replacing or sterilizing the soil in so many beds is not practical. The burgeoning flock of hens and chicks planted at the base of stone walls as a ground cover is kept in check by a cement based brick mowing strip flush with the lawn. To have forget-me-nots *(Myosotis* sp.) blooming in the quantity she wants for mass underplanting sometimes requires special tactics. The forget-me-nots usually seed themselves in profusion and are well started by fall. The combination of last fall's rains and a few areas of poor drainage next to the mowing strip rotted most of the forget-me-nots at the base of one long wall. Dickie Barker moved some thriving clumps into the basement and put 150 divisions of those clumps under lights for the winter. If this experiment works, she'll replant the forget-me-nots at the base of the wall in May, achieving again the intense blue base for one of her very special color combinations.

trees as poems

Moving from the flower beds to more distant views in the garden I reviewed Gertrude Jekyll's comments on trees:

> "In planting or thinning trees also, the whole ultimate good of the effect will depend on this sense of form and good grouping. If these qualities are secured, the result in after years will be a poem; if they are neglected, it will be nothing but a crop."

In the Barker's garden there are poems, not crops. Bordering the house and road, mature oaks, rhododendron and a double-trunked umbrella pine *(Sciadopitys verticillata)* provide a backdrop and windbreak for the azalea border nearest the house. Looking downhill (toward the southeast) every tree you see was planted by the Barkers,



photo by Mary Lou Wolfe

Seed of this apricot colored cockscomb was a gift years ago from a friend and is carefully collected each fall for May planting in the cutting garden.

grouped to accent the long sweep of meadow and to guide the eye to the magnificent distant view. A regular spray program and excellent professional advice, carefully heeded, contribute to the "poem" status of this collection of trees.

Mrs. Barker laments that deer have "horned to death" her favorite dogwood, "eat hostas like salad" and when it comes to roses "they don't want the leaves: they want that *little bud* that emerges unscathed and is eaten."

> "I hold that nothing unsightly should be seen in the garden. The shed for sticks and stakes is a lean-to at one end of the barn."

Jekyll could have been describing this Roxborough hillside. Looking down on the "garden rooms" backed with cedar of lebanon and atlantic cedar one sees the handsome old stone and stucco barn. Protected and out of sight behind its red-roofed bulk are cold frames, a potting shed with cozy wood stove and off toward the north, a sizable vegetable and cutting garden. Some remarkable plants come from that cutting garden. With her long-time gardening helper Mickey McMahon, Mrs. Barker grows the polyanthus rose 'Junior Miss' producing the tight pink buds one expects only from the best florist. Another specialty is an apricot colored cockscomb *(Celosia argentea cristata).* The original seed was a gift from a friend, Marian Fellheimer. Grown now without competing celosia colors, the seed is collected each fall and planted when the ground warms in May.

deer: an alarming challenge

The past decade has brought an alarming challenge to the Roxborough hills where the Barkers and their neighbors garden. Deer in herds of 20 cross from the sanctity of 500 acres of Schuylkill Valley Nature Center woods to nibble azalea buds, devour iberis and phlox, gorge on Japanese yew and sharpen their horns on *Cornus kousa.* Mrs. Barker laments that deer have "horned to death" her favorite dogwood, "eat hostas like salad" and when it comes to roses "they don't want the leaves: they want that *little bud* that emerges unscathed and is eaten." Deer browse and trample the hens and chicks. Her Swiss spirit rises and tiny Mrs. Barker counter-attacks: rolls of 4 ft. chicken wire are unfurled over azalea borders; a new spray called "Chew-Knot"* is applied; in another area a mixture of tabasco and "sticker" (e.g., liquid detergent to promote adherence) is sprayed on choice shrubs. The Barkers hope these measures will help and are watching with interest the controversies over deer control at Ridley Creek State Park and the Tyler Arboretum in Delaware County. Deer control measures for the private homeowner take a lot of doing especially when your garden stretches over 30 delicious acres. The problem becomes more acute each year as developments reduce natural grazing areas and populations of deer and humans increase. But, as Gertrude Jekyll said,

> "No good gardening comes of not taking pains. All good gardening is the reward of well-directed and strongly sustained effort."

I don't need to tell you that Mrs. Barker bought enough chicken wire to properly pen in her flocks of hens and chickens, descendents of that original gift from Mrs. Scott.

*"Chew-Not" is available from Nott Manufacturing Co., Pleasant Valley, NY 12569 (phone 914-635-3243) and lists Thiram as one of its active ingredients.

●

Mary Lou Wolfe is PHS's horticultural librarian and a frequent contributor to *Green Scene.*

Before and After



photo supplied by Dickie Barker

The view downhill from the house to the barn as it looked in the 1940s.



photo supplied by Dickie Barker

The same view as it looks today with the well kept barn just visible behind mature dogwoods.

Before and After



photo supplied by Dickie Barker

In the foreground an unsightly barn was demolished in the 1940s leaving its handsome stone foundations. Mr. Barker built the L-shaped raised stone planting beds in the center of the photo.



photo by Mary Lou Wolfe

Today, one looks through the old barn doorway festooned in wisteria to raised tulip beds edged with sedums.

A May Day





photos by Patrick Radebaugh



Everyone welcomes May at the Party: ducks, goats, clowns and young persons.

Party

by Jane Lennon

Your great, great, great granny, wherever she was, whatever else she might have been very busy doing, was probably almost certainly thinking about the coming May. Thinking about the month itself with all its bright gentleness, and about the May celebration. Surely there was a May celebration. People all over the northern hemisphere have celebrated May in some way since the very dawn of time.

During the last century we have paved our roads, insulated our houses and bodies and shifted our main areas of activity into man-made structures with man-made climates. Winter and summer are all one in the workplace. Weather is O.K. or inconvenient, but not very important. Unless it is catastrophic it goes unnoticed in the general scheme of things.

We gardeners are lucky. We have to be aware of the weather to practice our hobby and craft. Wet, dry, hot or cold weather has a direct effect on our gardens. The seasons in our gardens march along in their annual pattern, throwing in surprises of sharp weather to keep us from becoming too smug about our control over our chosen piece of earth.

Each year, May arrives new and fresh with all its promise. May is spring to the limit.

I recommend you celebrate May.

Recorded history shows May, 600 years ago: the wet ground kept planting several days distant, while the sunshine dried and warmed the soil.

Spring greens were growing thick and succulent. Cows gave more milk and hens more eggs. Winter was over, the seed grain set aside or planted, so extra flour was available for baking. The remaining root vegetables and fruits were brought out of the cellars in anticipation of new crops.

It was May time; time to celebrate spring. Everyone in the district would go-a-Maying. They took their cows, with flower garlands on their horns, and their sheep and goats along with them. All these animals were especially fond of Maying, eating onion grass and dandelion, and each other's garlands as they went.

The May revelers made a camp in a forest glade, grazing their animals nearby. They visited and ate, danced and played in the forest. After the long isolation of winter, May was a celebration of human company as well as seasonal splendors. Celebrating in the forest removed everyone from the worries of work or home. After several days of revels the May company chose a May tree and cut it down. Into its branches they tied flowers, scarves and sashes as May tokens. Then they carried the May tree back to their village and stood it in the square. The May tree with its fluttering tokens was a reminder of the promise of May, and stood in the square for a year.

Perhaps the ancient customs of May will inspire you to celebrate. Probably not with a three-day camping trip with your entire town, but some outdoor activity that provides a change from your regular habits.

May poles were a distillation of the May tree of long ago. Perhaps the ancient customs of May will inspire you to celebrate. Probably not with a three-day camping trip with your entire town, but some outdoor activity that provides a change from your regular habits.

Last year we celebrated May Day with a picnic with family and friends. Like the ancients we felt rather isolated during the winter and longed for company, and we had spring to share. Leaves unfolding on the trees, buds emerging, and new families in the barnyard. There is a network of old paths here at the farm, leading through the woods and back into the open. These are perfect, slow and lazy spring walks.

We had May bounty from the farm for part of a picnic menu. Peppery watercress growing at the spring house door. Potatoes from the cellar, fresh eggs from our hens, rhubarb, which our friend Jeanette Segal would transform into divine pies. The last farm fresh ingredient was sweet woodruff, the May herb.

We brushed away an April snow to gather a handful of fresh, green, sweet woodruff to make May wine. The washed sprigs were stuffed into a jug of light, white wine. The wine was capped and allowed to absorb the essence of woodruff for the next few weeks, until May Day.

May Day dawned sunny and warm. Our city friends and their children arrived to share the May. We strained the May wine, and served it in a punch bowl with fresh sprigs of sweet woodruff and tiny strawberries floating prettily.

A party is very simple, with spring as the main attraction. May is so fleeting. An old weeping cherry on the bank of the stream wore red buds for days. On April 31st it bloomed magnificently. On May Day, when the temperature reached 70°, around noon, it began to shed its petals. A snow of cherry petals in the May sunlight, that lasted not much longer than the flowering.

A barn cat obligingly produced a family of kittens from some hiding place deep in the barn. The little cuties rolled and played in the hay in the sunlit doorway. Two very patient little girls were

continued

MAKING A MAYTIME GARLAND

Our herbalist neighbor, Yvonne Giunta, made wonderful garlands for the May celebration. Fresh flowers were in short supply on May 1st, so the garlands were made with dry flowers. The directions she shared work for both fresh and dry flowers.

supplies

Plenty of dry or fresh flowers or greens
1 stem of florist wire (14 in.)
Florist tape (we used white)
4-6 yards ribbon ½ in. wide, several colors

to make the May garland or headpiece:

One stem of florist wire is the base for the garland. Leave one inch of wire uncovered at each end. Make a tiny bunch of flowers, with stems cut to about two inches. Hold the bunch and the wire firmly in one hand, and wrap the stems and wire with florist tape. Keep adding bunches spiraling the tape over the stems and wire as you go. Each new bunch of flowers covers the stems of the preceding bunch.

When the flowers are in place, cut the ribbons and attach them by bending the bare ends of the wire over the ribbon, then tuck the wire ends out of sight among the flowers. To shape the garland into a curved headpiece, hold both ends and bend it over your knee.

These garlands are very lightweight and because the florist wire was easily shaped they fit all heads, large and small, and did not need hair pins or other mechanics to be worn.







Illustration by Julie Baxendell







First violet

photos by Patrick Radebaugh

later seen in the barn with sleeping kittens in their laps.

A tiny bantam hen with her brood noisily skirted the barnyard scene. The chicks were the size of walnuts and the colors of the spring ground. They were animated pebbles, oak leaves and dandelions. The sound of their nagging, fussy hen mother was part of the May orchestra.

Late in the afternoon a clown arrived. A bright yellow clown with long orange hair clowned down the driveway and across the lawn, without a sound. Then the children began to reappear, from the hayloft, and tree house, the barn cellar and the meadow. They had spread themselves over the whole farm, and we were surprised to see how many childen we had when they were all assembled. The wonderful silent clown kept them spellbound till the sunset began to streak the sky, then the clown disappeared without a word. The birds and the visitors went home to bed and to the work of May – the planting and mowing, hauling and fixing began the next day.

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Jane Lennon farms and gardens in Berks County. Her photographer husband, Patrick Radebaugh and their son Pierre, enthusiastically participated playing and working at the May Day Party.





BASIL MADNESS

by Libby Goldstein

I'm not really sure how it happened, but all of a sudden there I was with 12 different kinds of basil sprouting in a flat in the cellar. I started out quietly enough: a few basil plants to be set out in May with my tomatoes. There weren't even any purple basils, just plain old *Ocimum basilicum* to chop over fresh tomatoes and add to tomato sauce ("gravy" as it's known in our neighborhood).

Then I ran across 'Lettuce Leaf' basil in the Nichols catalog and tried some of that one year. Since it seemed more productive and had a more intense flavor, I stuck with it for a couple of years. At some point, I got one of Nancy Howard's 'Rio Grande' basils at a PHS plant exchange. It had dark purple bracts, purple flowers and a terrific flavor. I grew it summer and winter, saved seeds and traded them with friends for several years until one day my seed envelope just disappeared. By then, I had discovered all manner of basils; Park Co. had some seeds. Otto Richter had others.

And thus began the basil madness. I even bought basil plants from Fox Hill Farm in Parma, Michigan. They are so caught up in basil madness that they hold an annual basil festival and pesto contest. Buying basil plants because one can't find a seed source is probably the height of basil madness. Basil is easily grown from seed.

starting from seed

The ancient Romans thought basil a most recalcitrant plant and suggested cursing it roundly at planting time and telling it to stay in the ground. The theory was that the seeds would germinate just to be contrary. I have cussed my basil seeds a lot, not because they need it but because it's just a wonderful excuse for carrying on. What really gets the basils up is bottom heat, moisture and darkness.

I generally plant mine in March or April so they'll be ready to set out with my tomatoes in mid-May. Using flats or market packs of properly dampened peat-lite mix, I plant the seed ⅛ to ¼ in. deep about three seeds to an inch, in rows that are an inch or two apart. After labeling them, I put the container in a plastic bag to hold the moisture and set the containers on a heating cable in my dark germinating chamber, actually a powder room that has hardly ever been used by people since it was taken over by seed flats and cats.

When I first grew lemon basil, I thought I was being fairly esoteric – chic, even. Then I found it growing in the shade of other plants in virtually all of the Southeast Asian community gardens.

Most seeds germinate in a week or so at which point I remove the plastic and put the flats an inch or two under my fluorescent light fixtures. Since the temperature in the cellar where my light table is generally runs about 50°, I sometimes put the flats on a heating cable until the wee plants have developed true leaves. When I don't, the plants take a bit longer to develop, but they do grow, and I'm not sure the faster growth is worth the extra energy that the cable requires. The fluorescent fixtures each hold two 48-in., 40 watt lamps, one warm white and one cool white.

Once the plants have been thinned to an inch or two apart in the row, I fertilize them lightly with fish emulsion every two or three weeks and grow them on until it's time to begin hardening them off to go into the garden or into containers.

the plants

Last year I grew 'Tree Basil' from Fox Hill, and it really was a truly large thing growing 3 to 4 ft. tall and trying to take over half the asparagus bed. Like many other basils, it is fairly drought resistant unlike lemon basil *(Ocimum americanum),* which is relatively small, usually under a foot and will drop dead if untended for just a few days during a dry spell. When I first grew lemon basil, I thought I was being fairly esoteric – chic, even. Then I found it growing in the shade of other plants in virtually all of the Southeast Asian community gardens.

Almost all the basils are edible, but camphor basil *(O. kilimandscharicum)* smells so like camphor (and is so hairy) that I haven't had the nerve to try it. I just dry it and hang it in the closets. I've not eaten spice basil *(O. canum* x *O. basilicum)* either, but it is pretty – purple flowers and somewhat dentate leaves, and smells lovely in potpourris.

Burpee's 'Green Bouquet' basil has small leaves, white flowers and a wonderfully bushy, base-branching habit. It grows about a foot tall, and when planted in one foot centers, grows into a lovely edible hedge. I edged a raised bed with it last year. It was wonderful well into December and provided me

photos courtesy of W. Atlee Burpee Co



Green Bouquet basil

with jars and jars of pesto, to boot.

My most recent absolute world's favorite, however, is 'Cinnamon' basil, an *O. basilicum* cultivar with purple bracts and stems and lavender flowers. Vinegar, flavored and scented with it, turns a lovely pink color and jelly made with the vinegar and an infusion of leaves and stems is also pinkish – and a wonderful glaze for roasting chicken and pork.

harvest

Just a few basil plants of whatever sort provide enough pickings for anyone but the maddest basil aficionado. When flowers begin to form, one simply pinches the bracts, buds and leaves back to the next pair of leaves. The plants will branch at that point and try to set flowers again – in about a week to 10 days, so you have to start pinching again, and again. If you let your basils set seed, they will quickly decide their work is over, begin looking exceptionally ratty and die before you're ready.

To make basil vinegar, I simply fill a pint jar with basil leaves, bracts and stems without packing them down and then pour in all the vinegar the jar will hold. After a few days or a week, the basil turns a nasty sort of pickle color. When that happens, strain the vinegar, throw the old basil away, put fresh basil in the jar and pour the vinegar over the fresh leaves. If you're going to use the vinegar in jelly and you're using 'Dark Opal' or 'Cinnamon' and want a good clear pink or violet color, use white vinegar (or white wine or white rice vinegar). Otherwise, cider or red wine vinegar is quite nice.

continued



Dark Opal basil



photo courtesy of W. Atlee Burpee Co.

Sweet Basil

I am not at all fond of parmesan cheese, and somehow parsley seems to give my pesto a flavor I do not love. There are more authentic pesto recipes, but this is my favorite:

IDIOSYNCRATIC PESTO

3 large cloves garlic, crushed
3 cups of basil leaves, packed
¼-½ cup of pine nuts (pignoli)
½ cup of best olive oil

Put everything in a food processor with the steel blade and process until smooth, or process in batches in a blender pushing down with a rubber spatula until thoroughly pureed. To retain color, put in a jar with about ½-1 in. head room and carefully pour in olive oil until you have an ⅛ to a ¼ in. floating on top of the pesto. Makes about one cup.

If you're not totally basiled-out come fall, you can lift one or two plants and pot them up, or take cuttings so that you won't have to find space for garden giants. Basils root very easily in peat-lite mix that's kept evenly moist. Bottom heat hastens the process, but isn't a requirement. I don't even cover the containers in plastic. My propagation space, the infamous cellar, is apparently damp enough to prevent wilting and death.

Basil Sources:

W. Atlee Burpee Company
300 Park Avenue
Warminster, PA 18974

Fox Hill Farm
444 W. Michigan Ave.
Box 7
Parma, MI 49269
(plants)

Nichols Garden Nursery
1190 North Pacific Hwy.
Albany, OR 97321

Geo. W. Park Seed Co.
P.O. Box 31
Greenwood, SC 29646

Otto Richter & Sons, Ltd.
Goodwood, Ontario
Canada

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BASIL JELLY

1 cup solidly packed basil leaves & stems
1¼ cups water
½ cup basil vinegar
3½ cups sugar
1 pouch liquid pectin

Steep the basil in the water in a covered container for several days or until the water smells and tastes of basil. Strain the basil water and the basil vinegar into a six-quart pot; add the sugar and stir well. Stirring contantly, bring to a full rolling boil that can't be stirred down over high heat. Add the pectin. Return to the boil for 30 seconds. Remove from heat and skim off foam.

Ladle quickly into three or four hot sterilized half-pint jars. Leave ⅛ in. head space. Put on sterilized canning lids and process for five minutes in a boiling water bath. The result will be really clear and is practically guaranteed to impress the judges at the Harvest Show.

Libby J. Goldstein is Penn State's Philadelphia County Extension director and writes "The City Gardener" column in *The Philadelphia Daily News*. She won a blue ribbon at the 1983 Harvest Show for a collection of herb jellies made with the "secret" recipe in this article.

BEGONIAS WITH DISTINCTIVE FOLIAGE

by Sylvia Lin

photos by Sylvia Lin



Begonia 'Firedance'



Begonia bogneri

When browsing through plant catalogs, I always find I'm most attracted to the begonia sections featuring "distinctive foliage, unusual shape or habit of growth." Included in this group are several of the epiphytic variety.

My first experience with growing this special variety occurred a few years ago when I ordered a selection from a mail order source (see box). It was early November, and I was eager to experiment during the coming bleak winter months. That was my first mistake. I gave my new friends the best southern exposure in my enclosed garden room. They were placed on the highest shelf of a plant stand to give the best possible light and temperature. In the room, the temperature varied between 50-65° (night 50°). Not expecting much growth because of the season, I nursed them patiently thinking time and loving care would surely produce results. *Begonia bogneri* is semituberous so I concluded it was just in dormancy. Neither *B. bogneri* nor any of the others showed any progress in the months to follow and the temporary dormancy became permanent; they all died.

The fatalities only prompted a stronger desire to try again. In the meantime, I studied *Begonias: The Complete Reference Book* (Mildred and Edward Thompson. NY Times Books, NY, 1981). It is a must for anyone interested in begonias and has become my horticultural bible.

Once again I ordered *B. attenuata, B. herbacea, B.* 'Midge' and *B. bogneri.* (See chart for descriptions.) This time I would try growing them in different mediums. *B. attenuata* and *B. herbacea* were placed in moss-lined wire containers. *B.* 'Bebe' was placed in driftwood and *B. bogneri* in a terrarium. The suggested humidity for these plants is 60%, so I placed the wire baskets and the driftwood in an old fish tank with a cover and added a grow light. They are given 10-12 hours of light and watered when necessary (finger should be damp to the touch; do not overwater). The potting mix was sterile, soil perlite and oak leaf mold. They must be checked frequently

continued



Begonia attenuata

Begonia 'Millie Thompson' ▼



since moss dries out readily.

I put *B. bogneri* in a terrarium, using shredded long fiber moss and perlite. Since this medium provides no nutrition, I fertilize every time I water. I use Schultz-Instant Liquid Plant Food 10-15-10, using a stronger solution than recommended. They suggest seven drops of the plant food per quart of water; I add seven drops to a pint. It seems to work for me. I use the water/fertilizer solution when the medium is dry to touch. It's imperative that the medium not be too moist because moisture promotes fungus. I remove the lid every other day to allow air circulation.

My success with *B. bogneri* encouraged me to try other terrarium plants. Now, where to place the terrarium bubbles? In an infrequently used bedroom of my grown daughters, there is a book shelf and formica study area. On the underside of the book shelf I placed fluorescent tubes and the plants were placed on the formica desk area. A few months later, I encountered another obstacle. As the plants grew, larger terrariums were required. Where could I put them, I asked myself. The answer: a large clothes closet that served our three daughters. At a local hardware store, I selected inexpensive wire closet organizers – strong enough to support the weight of the terrariums. Lights were strung to the existing shelves and now once again my mature plants had a home – in a larger bubble.



Sylvia Lin uses an old study space in her daughters' room to extend growing space.

A few varieties that I have tried are *B. rajah, B.* 'Millie Thompson,' *B.* 'Wanda,' *B. chlorosticta* (*ex Kew* species). *B. chlorosticta* has been extremely interesting and one of the more challenging to try to grow. I knew I had to have this polka-dotted begonia when I first saw it. Once it was part of my collection, I discovered that *B. chlorosticta* had another unusual characteristic besides looks; it is susceptible to fungi – the bane of any begonia grower's existence. *Chlorosticta* is not a sturdy plant and is extremely temperamental. I use a diluted solution of Benomyl at the first sign of a fungus attack.

My favorite is *B. bogneri.* Being semituberous, it has many intervals throughout the growing years during which it looks absolutely dreadful. During its peak period, from fall to late winter, the grass-like foliage is lush green and the flowers a lovely pale pink resembling forget-me-nots. It's a beauty! But during its dormancy it looks like a sparse clump of washed-out leaves; it looks worst during the hot humid summer months when growing is done under lights.

These begonias are a pleasure to try and relatively easy to maintain. Don't forget, have the mixture damp to finger touch, do not overwater and remove the lids at intervals for clean air circulation.

Sources

All of the begonias discussed in this article were purchased from:

Ed and Millie Thompson
P.O. Drawer PP
Southampton, NY 11968
Phone 516-283-1633.

Other sources are:

Logee's Greenhouses
55 North Street
Danielson, CT 06239
Phone 203-744-8038

Kartuz Greenhouses, Inc.
1408 Sunset Drive
Vista, CA 92083
Phone 714-941-3613

For More Information about Begonias

Begonias: The Complete Reference Book, New York Times Books, New York, 1981. (Available at PHS Library.)

This book is quite simply the bible for horticulturists interested in begonias. The photographs are clear, detailed shots of begonias in their prime. In the chapter on terrariums, the authors start with step one: preparing the medium and selecting appropriate containers. Once your plants are in place, they provide advice on the proper maintenance of terrarium begonias. Without such a guidebook, I would not have had the incentive to try so many types of begonias. The book is valuable for the experienced grower and is a must for the novice grower.

S.L.

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Sylvia R. Lin won the Horticultural Sweepstakes at the 1983 and 1984 Philadelphia Flower Shows. She was runner-up in 1979, 1980 and 1982.

Begonias with Distinctive Foliage

Variety	Type	How Planted	Foliage	Blossom	Bloomtime
Begonia attenuata	rhizotamous	moss-lined wire container	deep green leaf, lance shape, at full growth about the size of an index finger	white	March-May / profuse
B. 'Bebe'	rhizotamous	planted in driftwood	narrow green leaves about the size of a thumb with pointed ends	very light pink	winter, spring / profuse
B. bogneri	semituberous	terrarium	a pale green grass-like leaf that grows in a cluster	pale pink	fall, late winter / profuse
B. chlorosticta	*ex Kew* species	terrarium	shrub-like foliage, leaves about the size of a hand, teardrop shape, kelly green background freckled with lime green dots	white	fall / sparse
B. herbacea	rhizotamous	moss-lined wire container	similar to *attenuata* leaf, but slightly broader with young leaves a pale green turning darker with age	white, tinted green	everblooming / moderate
B. 'Midge'	rhizotamous	moss-lined wire container	a smooth, feather-shaped leaf with a pale green fringe and dark green center	greenish white	intermittent
B. 'Millie Thompson'	rex	terrarium	a medium rex leaf with a heart shape, predominantly silver with a deep green starburst in the center	non-spiral, pink	intermittent / moderate
B. rajah	rhizotamous	terrarium	an unusual green and white round leaf with a blistered surface	light pink	intermittent / moderate
B. 'Wanda'	rhizotamous	terrarium	a medium size, round leaf, silver with veins outlined in a forest green	light pink	intermittent / sparse



to potpourri or to sachet?

by Emmeline Beal McIlvain

People are sometimes confused about potpourri. The term covers two entirely different subjects, and is used to mean either. When it is necessary to distinguish between them the current solution is "potpourri, the wet method" and "potpourri, the dry method," which seems clumsy and unclear to me. There are names for each, dignified by age and custom. For the "wet method" there is "potpourri" from the French, meaning "pot of rotting flowers." And for the "dry method," "sachet," also from French, meaning a small bag or packet of dried sweet flowers to place amongst clothing. The manufacture of scent by artificial means, however, has felled both terms, and with them the preservation of the delightful scents of flowers. Today potpourri has become a heterogeneous collection of spices and oils in a frantic attempt to preserve *something*. Pomanders are fretted china balls containing pellets of chemicals. I've had the sad experience of buying a pretty jar of sachet, which when opened gave off the well-known scent of a cologne by Coty, obviously sprayed on inert dried flowers. On the other hand, a properly prepared sachet from Williamsburg lasts for years smelling sweetly of the garden on a warm day.

Both the methods for making and the uses of these delicacies have become obscure, which unfortunately has led to disinterest in potpourri. It is thought to be tedious and time-consuming. Recipes have proliferated and overlapped, and ingredients have been added without due consideration for results. Scents mask other scents, some are overpowering, fragrances are lost and the end is rotten indeed. Properly and carefully made, the results are purely delightful. Potpourri is used solely for perfuming the air, and the emphasis should be upon perfuming, not on a desperate effort to preserve an accumulation. Sachet, under the name of dry potpourri, is currently having a revival, brought about by scent shops from England in our department stores and malls. Sachet is used in closets and bureau drawers, where it brushes against clothes, and on shelves between folded linen, where it is pressed into the fabric thereby releasing the oils.

Potpourri is used solely for perfuming the air, and the emphasis should be upon perfuming, not on a desperate effort to preserve an accumulation. Sachet, under the name of dry potpourri, is currently having a revival, brought about by scent shops from England in our department stores and malls.

In each case the fragrance is derived from the essential and volatile oils of plant parts secreted by glands in the leaves, and by certain cells, known as osmophors, found in petals and other floral parts. These cells have a secretory tissue several layers deep in which the oils are produced and stored, or secreted, as the plant needs. The oils are also released after harvesting as pressure is applied to the cell walls or to the mouths of the glands as in sachet, or when warm air brushes over the volatile oils already released as in potpourri. Essential oils are produced in greater abundance by certain plants such as the rose, *(Rosa gallica, R. centifolia, R. damascena,* whose fragrance is produced in their petals, the famous "attar of rose." Other oil producing flowers are lavender, *Lavandula angustifolia,* and *L. stoechas* of ancient history, azalea *(Rhododendron indicum),* and mock orange *(Philadelphus* spp.). The scented geraniums, especially *Pelargonium graveolens,* are plants storing oils in their leaves, released through hairy glands, producing the charming lemon-rose perfume, geraniol. Another example is the mint family, which gives us menthol. Then there are the resin manufacturers, rosemary, the conifers, balsam fir *(Abies balsamea).* Don't discard your Christmas tree; make a pillow of it.

harvest for sachets

I harvest gently at the moment of greatest accumulation of oils, usually on a warm, dry morning as the blossoms open, or in the case of leaves, when the leaf is at its freshest mature condition. I cut the flower where it meets the stem with my garden snips and allow it to drop into a basket from which I shake the flowers onto trays or screens for drying. I avoid touching them as much as possible throughout the whole process, since undue handling causes oil loss. Petals are stripped from the flowers by pulling gently from the tips if possible, as the oil glands are usually in the base of rose petals. (The procedure is the same for potpourri except, as indicated elsewhere in this article, the petals are not permitted to dry.)

I set the petals in a warm, dry room with ample air circulation until they are crisp and dry enough to make sachets.

continued





After drying, the decision to mix follows the dictates of personal taste. One helpful additive is orris root, which acts as a preservative, lengthening the life of the sachet. Orris is the dried root of *Iris germanica,* which the druggist carries in powdered form. The finished product is stored in bags or pads made of thin fabric such as gauze or voile. Sachets release their oils slowly, requiring to be pressed or shaken so that they are rubbed about on themselves, as in a bureau drawer, or between linens on a closet shelf. Packaging is challenging because the plant parts must be enclosed yet must release their scent

potpourris

To make potpourri (the wet method) it is best to prepare a mixture of rose petals and salt alone at the start. That is not to say that rose is the only flower from which potpourri is begun; azalea or mock orange is also excellent. Undoubtedly others can be found, but in such cases the one kind of blossom is also recommended. It is best to wait until the initial rose petal mixture is ripened to determine which other scents are to be added to avoid masking the delicate perfumes with strong or conflicting spices. Again, as in sachet, the petals should be gathered at peak fragrance, on a warm, clear day. Take care when working with the petals not to bruise or handle them too much as the oils will be needlessly released. The drying process is begun as in sachet, but continued only until the petals are just dry since they are to release as much of their oil as possible into the container in which they are placed. This should be a lightproof, airtight jar or crock; a ginger jar or cookie jar is excellent. The layers of petals, one inch thick, are followed by a coating of coarse table salt, such as Morton's Kosher Salt, followed by more petals and salt until all are used. Close the jar, then store in a warm place for the potpourri to ripen. Further harvests may be added, but the mixture must be stirred

Don't discard your Christmas tree; make a pillow of it.

first. Some recommend stirring daily. By the end of summer a lovely fragrance of rose will be distilled in the jar for use in the winter living room. A few tablespoonfuls placed in a potpourri bowl become a treasure on the coffee table or desk. The ideal bowl for the purpose is shallow, with a tight fitting lid, which is pierced with seven or eight small holes. Colonial Williamsburg makes a lovely potpourri bowl.

orris root

Orris root may also be added to potpourri, with the warning that it absorbs liquids, and may cancel out its preservative effect. (I use a light dusting.) Other scent bearing plant parts may be added such as blossoms of clove pink *(Dianthus caryophyllus),* orange peel, or lemon verbena, lemon peel, even a little lavender, a strong scent that is really better for sachet. "Experiment" is the watchword, and the pleasure in this endeavor. Recipes abound. They may be found in the excellent Time/Life book, *Herbs,* in Rosetta E. Clarkson's *Herbs, Their Culture and Uses* and Helen Van Pelt Wilson's and Leonie Bell's lovely book *The Fragrant Year,* to name only a few. Old herbals often have "receipts" for potpourri, and they are fun to collect. All authors have their own ideas, and no two are alike, but that too is the fun of it. I urge you to make your own discovery; your experiments will prolong the joys of summer's lovely scents.

Sources

In preparing this paper I have used the following sources:

My mother, Claire Shouse Beal, who taught me to make sachet in my childhood.

Flowers in House and Garden. Constance Spry. J. M. Dent and Sons Ltd., London, 1937.

*The Fragrant Year.** Helen Van Pelt Wilson and Leonie Bell. M. Barrows & Company, New York, 1967.

*Herbs.** James Underwood Crockett, Ogden Tanner, and the Editors of Time-Life Books. Time/Life, New York 1977.

*Herbs and the Fragrant Garden.** Margaret Brownlow. Revised 1963. McGraw-Hill Book Company, New York, 1957.

*Herbs, Their Culture and Uses.** Rosetta E. Clarkson. Macmillan Company, New York, 1942.

*Hortus III.**

Plant Anatomy, "Secretory Glands."* Katherine Esau. 2nd Edition. John Wiley & Son, Inc., New York, 1967. (1953 edition available in library)

And many, many batches of potpourri gone wrong.

*available at PHS Library

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Emmeline McIlvain is a gardener in the Newtown Square area, a lover of fragrances, a proud member of the West Chester Garden Club and an equally proud member of the Philadelphia Unit, Herb Society of America.

The newly completed deck is a place to relax.



photos by Barbara Brown

FOUND SPACE

by Barbara Brown

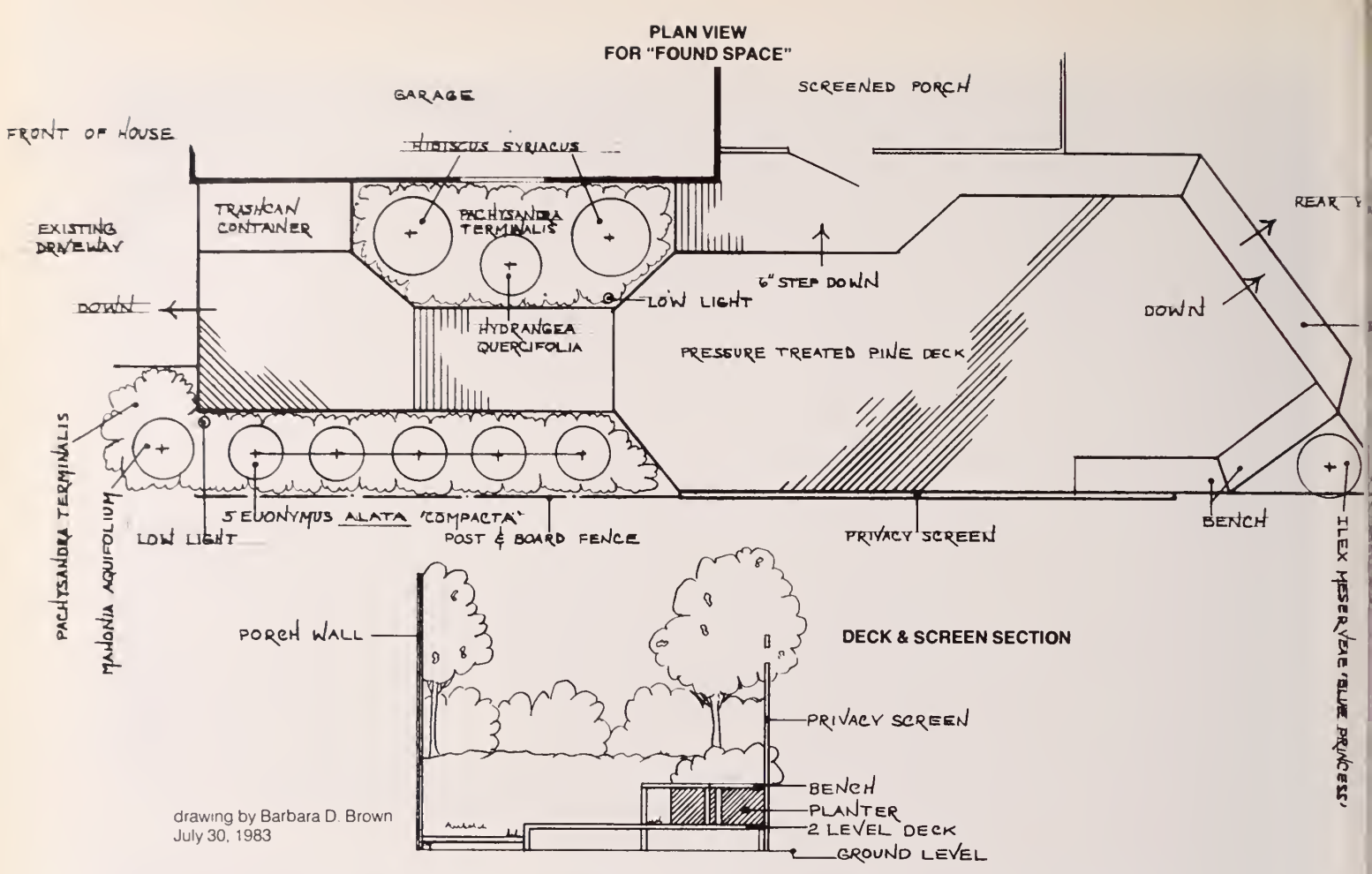
Taking a narrow, useless passageway that fronted on an unattractive view, the author designed a screened deck area that serves as a transition from a back garden to the street and offers more space for relaxation and container-grown plants.

Have you ever had a bit of outdoor space that seemed completely useless? Was it too small or too shaded or too visible to the public eye or too wet to grow much? I recently worked on a project that combined all of these problems with clients eager to be involved in the solution. They said, "Look, you've got to do something about this. It's intolerable." And, in fact, it was.

The owners of the property have a lovely home that has been extensively renovated inside. The house next door literally had been allowed to go to pieces. The paint was peeling. Rain gutters and downspouts were coming loose. My clients, Lynn and John, had to look at this every time they came or went anywhere. What they needed was a secluded place to sit out and entertain friends during warm weather where it would be sheltered and sunny. To keep things interesting, the space in question was damp, shaded and narrow (11½ ft. from house to property line). This narrow space also had to provide access from the rear yard to the drive in front and an area for trash cans. As you can see, it was a big order for a little area.

The owners had a good idea of what

continued



drawing by Barbara D. Brown
July 30, 1983

they wanted, but always seriously considered my suggestions. What John wanted me to design was a deck. We enlarged that concept to include privacy screens and fencing. We experimented with screen and fence height, number of fence rails, type of wood and deck shape. As each part began to develop on paper, Lynn and John would go out with boards, sheets and string to try it out. Consequently, they knew what they were getting and were comfortable with it before one board was cut or one nail was driven. On a large project, of course, this approach wouldn't be practical.

The result was a two-level deck with a boardwalk to the driveway. The deck was edged with a high privacy screen at the property line dropping down to a two-rail fence extending to the drive. Planting pockets were left for growing easy care groundcover and shrubs to soften angular edges. An attractive trash can container was located adjacent to the driveway and in exactly the right spot for rubbish collection.

The deck's angularity and varied board directions give interest and focus to this small area. The variety of decking helps keep the height of the screen from becoming overwhelming because the eye is directed downward. The owner had sort of turned into a beaver in his earlier careful efforts to grade the area so that water would run away from the house and toward the drive at the front of the property. We could not, in any way, change the existing grade. That meant the deck had to be constructed on two levels to accommodate the door swing and to get it high enough to allow the slope beneath to remain as it was. Two by four pressure-treated yellow pine boards were used as flooring because they are rot- and insect-resistant and of reasonable cost. After checking with the Agricultural Extension Agent, several exterminators and fence companies we were satisfied that we had done what we could to prevent termite attack – a concern in this location. By using the narrow 4-in. boards, we kept the deck in scale with its diminutive surroundings.

As each part began to develop on paper, Lynn and John would go out with boards, sheets and string to try it out. Consequently, they knew what they were getting and were comfortable with it before one board was cut or one nail was driven.

The screening was high – 6 ft. We again kept the scale small using one by six boards with spacing at the top to minimize this height as much as possible. Lower post and rail fencing completed the job of delineation and there was no way to see over the screening except into the trees overhead.

Poor soil and shade are now of little consequence because most of the side yard is covered with beautiful decking, which will weather to a lovely soft gray color. The small planting pockets are filled with pachysandra *(Pachysandra terminalis)*, dwarf winged euonymus *(Euonymus alata* 'Compacta'), old roses of sharon *(Hibiscus syriacus)* pruned high for a different look and a new oak-leaf hydrangea *(Hydrangea quercifolia)*. Several old and scruffy white pines have been taken down by new and fortunately caring neighbors. This allows the sun to shine in and give John and Lynn just what they had hoped for – a sunny and intimate spot to enjoy particularly during spring and fall with a view of the rear garden plus a place for colorful potted plants. What had formerly been a dismal strip of bare earth is now a really useful and attractive living space.

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Barbara Brown is a landscape designer with W. D. Wells & Associates. She received her degree in landscape design from Temple University's Ambler Campus.

photos by Barbara D. Brown



BEFORE ▲

Trash cans, bare ground and neighbor's peeling paint; the side yard clearly needed changing.

AFTER

Trash cans are now contained and a dry and comfortable walk is provided to back door. ▶



Note how well narrow width of decking relates to small size of area.



INSECTS THAT BENEFIT GARDENERS

by Ann F. Rhoads



The predatory habits of the praying mantis are well known.

Insects in the garden. Sound like trouble? Not necessarily; in fact some insects may be a real boon. Honeybees, of course, are valued as pollinators, and the predatory habits of ladybugs and praying mantises are also widely appreciated. But these well known members of the insect world are only a few of the many six-legged allies available to assist the wise gardener.

To enter our gardens many beneficial insects need only a little encouragement, mainly reduced use of chemical insecticides. A careful look around will very likely turn up evidence of these useful creatures' work. If you've ever found a tomato hornworm in your vegetable garden, you may have noticed small white sausage shaped structures attached to the caterpillar's back. These are the cocoons of a parasitic wasp (the genus *Apanteles*), which, when present in large enough numbers, kill the hornworm. The adult form of the tiny *Apanteles* wasp exits from the cocoon leaving a neat trap door at the top and seeks out additional hornworm larvae in which to deposit its eggs. A parasitized hornworm should be left alone until the wasps have left the cocoons.

Aphids are subject to biological control by a number of other insects. One, another parasitic wasp *(Aphidius* sp.), injects a single egg into each aphid's body. The wasp larva develops at the expense of the host aphid. A parasitized aphid, called a mummy, is recognized by its swollen appearance and shiny tan color. When the adult wasp is ready to emerge it cuts a round exit hole in the aphid's outer covering, all that's left of the original insect. I have seen aphid infestations in garden and greenhouse where well over half of the aphids were parasitized. Aphid mummies should not be disturbed until the adult parasites have completed their development and emerged. A single *Aphidius* female can produce as many as 1,500 eggs in her lifetime.

Aphids are also attacked by the larvae of both the green lacewing and the ladybug beetle. Each lacewing or ladybug larva can consume 200-600 aphids. These beneficial insects are available from a number of commercial insectaries if you wish to increase the native population in your garden. The most effective time to introduce parasites or predators is when pest populations are small. Beneficials are rarely able to provide the quick knockdown needed when pests have reached epidemic proportions.

Many scale insects are also attacked by tiny parasitic wasps. If you look closely you may find scales with one or more holes where parasites have emerged through the top of the scale cover after developing to the adult stage within. A heavily parasitized scale population may not need any further control.

Avoid using chemical insecticides while parasites and predators are active. Unfortunately, many of the beneficial insects are susceptible to commonly used insecticides. Sevin (carbaryl) is especially deadly to parasitic wasps. Pesticide use can cause the phenomenon of resurgence during which pest populations may actually increase. What happens is that the spraying kills a disproportionate number of the parasites to some degree and often fails to kill all of the pests. A Connecticut researcher, Mark McClure, observed this response in hemlock fiorinia scale. McClure sprayed some scale infested hemlocks and did not spray others. Five months later he found the surviving females produced more eggs on the sprayed than on the unsprayed trees. Parasites and predators, common on unsprayed trees, were almost totally absent where sprays had been used. Extensive use of Sevin to control hemlock woolly aphid may be the reason fiorinia scale has become such a widespread problem in our area in recent years. (See article on hemlock pest controls on page 30.)

Over the past few years a number of beneficial insects have been deliberately introduced into gardens or greenhouses. Among them is *Pediobius foveolatus*, a parasitic wasp that attacks the mexican bean beetle larvae. Bane of vegetable gardeners, the mexican bean beetle can reduce a row of string beans to leafless stems as the spiny yellow larvae satisfy their voracious appetites. The parasite is available from a number of commercial sources; unfortunately, however, it must be introduced anew each year as it cannot survive our Pennsylvania winters.

In the greenhouse the whitefly is subject to biological control. The parasitic wasp, *Encarsia formosa*, can be bought and used effectively in many greenhouses to keep whitefly populations below threshold levels.

Another beneficial organism that has proved useful in greenhouses and other indoor settings is actually a complex of several predatory mites, which feed on



A tomato hornworm with cocoons of a parasitic wasp.



The tan, swollen aphid is parasitized; the one on the right is not.

photos by Ann F. Rhoads

the common two-spotted mite. The main problem with the predatory mites is that they tend to be too efficient and once their prey, the two-spotted mites, are gone they too die out. Should two-spotted mites recur, as they often do, the predators must be reintroduced. Predatory mites are available from commercial sources and are not hard to rear once a starter colony has been established. They can also be released in the garden in the summertime but cannot winter-over outdoors. Predatory mites are extremely susceptible to certain chemical sprays, especially Sevin.

Over the years insect parasites and predators have been an important part of the effort to control the gypsy moth in Pennsylvania. Several parasitic wasps and flies, which attack either the egg or larval stages, are now well established and have been credited with substantially reducing gypsy moth numbers in some areas. Throughout the state evidence of the egg parasite, *Ooencyrtus kuvanae,* can be seen. Tiny holes in the surface of the gypsy moth egg mass are the exit holes of *Ooencyrtus* adults, which have emerged from parasitized eggs. Up to 60% of the eggs can be affected depending on the thickness of the egg mass.



Pine needle scale with parasite exit holes. Parasitized female scales produce few, if any, eggs.



Parasitized Mexican bean beetle larvae

the beneficial insects research laboratory

At present the search is on for other beneficial insects that can help solve more of our pest control needs. The Beneficial Insects Research Laboratory (Newark, DE) of the United States Department of Agriculture is actively exploring foreign sources for natural

continued



Predacious mites (red) are useful biocontrol agents for the two-spotted mite, a common greenhouse and garden pest.



Gypsy moth egg mass with pin holes indicating activity by the egg parasite *Ooencyrtus kuvanae*.



A dead gypsy moth larva with the cocoon of the parasitic wasp *Apanteles melanoscelus*.

enemies of many introduced pests. Once candidate species are located extensive laboratory testing is carried out to determine their effectiveness as biocontrol agents. Researchers are particularly careful to study the habits of these candidate species thoroughly to reduce the chance of secondary problems arising when they are released in the United States. Because of the need for close coordination in life cycles between parasites and hosts, a given insect parasite generally can attack only one, or perhaps a few closely related species. Most die out when their host is no longer available. Predators on the other hand tend to be somewhat less specific in their feeding habits. The Morris Arboretum is presently cooperating with the Beneficial Insects Research Lab in a field test of a parasite of the birch leaf miner. The parasites were released in the Arboretum three years ago and entomologists from the Lab are conducting follow-up studies to see how they've established themselves. Other current projects of the Lab include work with additional gypsy moth parasites and a search for a hardy bean beetle parasite.

Alert gardeners will find many interesting prospects developing in the biocontrol field. I've mentioned a few; others just beginning to reach the market are beneficial nematodes that attack certain ground dwelling insects such as weevils and beetles for which even insecticides have not been effective.

Sources of Beneficial Insects

King's
P.O. Box 52
Spring City, PA 19475
(215) 948-9261

Merto-Pest Management Consultants, Inc.
P.O. Box 1029
Arvada, CO 80001
(303) 422-3708

Necessary Trading Company
New Castle, VA 24127
(703) 864-5103

Rincon-Vitova Insectaries, Inc.
P.O. Box 95
Oak View, CA 93022

GLOSSARY OF TERMS

biological control – reduction in numbers of one living organism through the activities of another living organism.
egg, larvae, pupa, adult – stages in insect development.
host – an organism that provides nourishment to a parasite.
parasite – an organism that makes its home in or on the body of another living organism from which it derives its nourishment.
predator – an organism that feeds on other, usually smaller organisms.
prey – organisms that serve as a food source to predators.

More Reading about Beneficial Insects

Color Handbook of Garden Insects. Anna Carr. Rodale Press, Emmaus, PA, 1979.
"Resurgence of the Scale, *fiorinia externa* (Homoptera: Diaspididae) on Hemlock Following Insecticide Application." *Environ. Entomol.* 6(3):480-484.
Windowsill Ecology. William H. Jordan, Jr. Rodale Press, Emmaus, PA, 1977.

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Ann F. Rhoads received her Ph.D. in plant pathology from Rutgers University. She's the assistant director for Botany at the Morris Arboretum, where she has worked since 1976. She is developing an Intensive Pest Management program for the Arboretum. She gardens in Yardley, Pa.

It's safe to mulch your garden in color

by Amalie Adler Ascher



Contrary to what you've been hearing, the color-printed pages of newspapers are as safe for mulching vegetables as the black and white kind. At one time they were not, but quietly, without fanfare that situation has changed.

Newspapers have commonly been suggested as an alternative mulch to peat moss, tan bark, compost or spoiled hay when other organic materials were not available. The exceptions were the comics and other colored-printed inserts, which posed a danger to health because the inks contained lead. The fear was that when the paper decomposed, lead would enter the soil and through food crops be transmitted to the body.

In the past, it was easy to pull out the colored inserts, the remaining black and white pages, comprising the bulk of the paper, offering plenty of material to lay on the garden. But these days, more and more color has been creeping into news and feature sections, sharply reducing the amount available for recycling. This state of affairs led a reader of my weekly garden column in *The Baltimore Sunday Sun* to write me lamenting the extensive use of color in the paper. He said the color reduced the amount of newsprint he could use as mulch by 50%. He then asked, "In light of the new technologies being employed in *The Baltimore Sun*, what is the usability of both the black and colored ink sections of the paper as mulch?"

The comics and other colored-printed inserts posed a danger to health because the inks contained lead. The fear was that when the paper decomposed, lead would enter the soil and through food crops be transmitted to the body.

To learn the composition of *The Sun's* colored inks, I turned to Reg Murphy, the president and publisher, who learned from the company supplying the inks that they are made up of pigments not based on lead. "These formulations will contain well below 300 parts per million (ppm) lead," said the company spokesman, "which is one half the allowable limit under the Consumer Protection Safety Commission regulations."

Wanting further assurance that even this seemingly infinitesimal amount would do no harm, I went to the U. S. Department of Agriculture, in Beltsville, to hear what Dr. Rufus L. Chaney, research agronomist in heavy metals in soils and plants, would have to say. Although newspapers contain no nutri-

continued



ents to build the soil, he explained, they do make an inexpensive, biodegradable mulch that suppresses weeds and keeps the soil moist and cool. Unlike plastic, newspapers also allow water to soak through. At the same time, they are a small source of humus, since soil microbes change them into organic matter. When shredding newspapers to mix in the compost pile, however, Dr. Chaney says, it is necessary to add fertilizer and limestone.

As for using the color-printed pages of the newspaper to mulch your vegetables, Chaney says not to worry. In the first place, he noted, ink is only a very small part of the weight of the newspaper. You would, therefore, have to eat pages and pages to consume your daily allowable quota of lead. Virgin newsprint, by-and-large, Chaney said, is found to consist of 5 ppm lead, which is about the same composition carried by black inks. Nowadays many, though not all, colored inks are low in lead, too, since they are made up of biodegradable organic compounds. Thus ordinary black inks and color inks differ very little. As a measure of comparison, for example, street dirt deposited by automotive exhaust has a lead content of 2,000 ppm, whereas carpet dust found in buildings of most cities (as opposed to suburban areas), because it has been carried in from the outside on shoes and clothing, registers between 1,000 and 2,000 ppm lead, Chaney said. Nearly all urban soils are enriched in lead, especially in inner cities.

There was a time, Chaney noted, when publishers gave little if any thought to the composition of their colored inks (except perhaps for economic reasons), and if they were aware that lead was an element, doubtless failed to attach to it any environmental significance. Then, in 1978, a report in *Chemical Engineering News,* the weekly magazine of the American Chemical Society, snapped people to attention. A group of environmental scientists analyzing *Playboy, Time, Life* and other such periodicals, discovered that the high content of lead in the color-printed pages was a potential source of lead poisoning in children who put the pages in their mouths. Although gardening was not the focus of the studies, the connection was clear. Remarks Chaney, "If you kept mulching your soil year after year with pages printed in materials that were 5,000 ppm lead, which many of those magazine pages were, you could enrich your garden in lead materially.

In the first place, he noted, ink is only a very small part of the weight of the newspaper. You would have to eat pages and pages to consume your daily allowable quota of lead.

"In the past," he continued, "red and blue inks in particular contained excessively high amounts of lead, while yellow pigments, which were composed of lead chromates, carried undesirable amounts." And although, to the best of Chaney's knowledge, Christmas and other gift wrapping paper and some magazines, especially the costlier ones, still use leaded inks, most newspapers (again, advertising inserts possibly excepted) do not.

"There are good reasons. For one thing, Congress, to protect children from lead poisoning in paint, passed a law limiting its content to less than 600 ppm lead, although today," Chaney says, "most paints are well below that level."

soil contamination

Unfortunately, as Chaney has pointed out, "nearly all urban soils are enriched in lead above background* levels as a result of automobile exhaust and paint deposits from demolished buildings. To illustrate, soils located miles in the country and not yet disturbed by people, but amended purely by the lead from rocks, carry a background level of 12 ppm lead. By contrast, in an average of 1,000 soil samples taken in the Baltimore urban area a percentage of 400 ppm lead was found.

"Extensive studies of plant uptake of lead from garden soils," Chaney says, "have established that the amount absorbed by leaf and root crops is very small. Therefore," he continued,"in evaluating risk, we should differentiate between lead ingested directly from soil and that received in contact with plants, which also would include lead discharged on leafy vegetables by auto exhaust. Children face a far greater danger from lead in the soil when they eat the soil than when they eat food the leaded soil has produced, so long as contamination does not exceed unreasonable proportions.

"But there are measures you can take to reduce exposure. If the lead content of your garden is much more than 500 ppm," Chaney says, "add limestone to raise the pH to 6.7 to 7.0, and incorporate compost as a diluent. A neutral pH helps lock lead in the soil and prevent it from traveling into food. When soil is highly acid," Chaney says, "plants take up significantly more lead, but even that

*Soil background levels: the natural soil content before it is polluted. Normal lead concentration is approximately 12-15 ppm lead.

TO CHECK LEAD IN YOUR SOIL

To acquaint the public with the facts about lead, the Cooperative Extension Service of the University of Maryland has prepared a free leaflet, No. 135, "Coping with Lead in the Garden." To obtain one, send a self-addressed, stamped, legal-size envelope to Pam King, extension agent, the Urban Gardening Program, 17 South Gay Street, Baltimore, MD 21202.

If you would like to have your soil tested for lead and other minerals (six elements in all as well as pH at a cost of $10), and your local extension service does not provide such a test, or furnishes it at a higher fee, contact William Stanley, University of D.C. Cooperative Extension Service, 1100 Harvard Street NW, Washington, DC 20010.

A.A.A.

If you live in Pennsylvania:

If you are interested in testing your soil for 23 heavy metals including lead, cadmium, chromium and zinc, request a "Baker Test," along with your regular soil test. The Baker Test costs $20; you will receive a printout and a recommendation for proper soil treatment. Call or write your county extension office (see page 29).

Libby Goldstein
County Extension Director
Philadelphia County

is minimal. However," he notes, "modifying pH does not reduce the risk of harm to children swallowing soil, for once lead enters the stomach it is dissolved by stomach acidity."

protective measures

"Washing leafy and root crops, a sanitary measure that ought to be taken as a matter of course anyway, removes surface soil and dust from automobile exhaust. But better than washing," Chaney says, "is peeling the skin of vegetables. People who think that by doing that they are throwing away the nutrients have been misled," he says. "The reason for stressing the importance of washing or peeling root crops is that by-and-large, they are contaminated by soil on the outside and do not absorb lead internally. Nor is lead taken inside by leafy tissues. Lettuce, spinach and the outer leaves of cabbage and head lettuce and other plants like them are high accumulators of lead because automotive exhaust tends to adhere to the leaves. But even in this instance, unless the soil is heavily contaminated, the threat of lead intake by the body is small. Moreover, crops can be rendered safe to eat by washing and adding limestone and compost to the garden. However, to reduce exposure from a heavily traveled highway, set plants at a distance no closer to it than 100 ft. Safest of all vegetables by virtue of their make-up are tomatoes, eggplant, broccoli, cauliflower, snap beans, peas and zucchini and the like. Lead is too insoluble to invade their lines of nourishment and thus enter their systems.

"If the lead in your garden is above 1,000 ppm," Chaney says, "reduce the number of root crops and leafy vegetables you raise. Instead of growing 50 per cent of your needs, reduce the amount to 10 or 20 per cent. But wash the produce well and don't store it over the winter. The skin of potatoes, for example, can absorb fairly high amounts of lead, and by prolonging the harvest you increase your intake to a greater degree than if you only ate the crop at the time of picking."

"Water won't dissolve lead in the soil, and microbes won't change its concentration, nor will lead alter their structure. But when soil erodes, lead will move with it. By using newspapers printed with the old leaded-color inks on a continuing basis in your garden, you could contaminate it to well above 500 ppm lead," Chaney said. And once lead gets into your soil, it's there to stay. Therefore, unless you introduce additional amounts, you need to have your soil tested for lead only once and preferably when you are beginning your garden. "There's a certain amount of lead in every food in the world," Chaney observed, "because lead is a natural element in all soils. But when the level builds to 1,000 ppm or above, you begin to show a significant relationship between the amount in food and the increased level in the soil. However," he added, "compost is a great equalizer. It's the best bet for the garden."

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PENNSYLVANIA, DELAWARE AND NEW JERSEY COOPERATIVE EXTENSION AGENTS

County	Agent	Address	Phone
Pennsylvania			
Berks	Judith Stoudt	Berks Co. Agricultural Center Leesport, PA 19533	215-378-1327
Bucks	Richard A. Bailey Scott Guiser Martha Horn	Neshaminy Manor Center Doylestown, PA 18901	215-343-2800 X385
Chester	Keith Zanzinger	235 W. Market Street West Chester, PA 19380	215-696-3500
Delaware	C. R. Bryan, Jr.	Delaware Co. Extension Office Rose Tree Park 1521 Providence Road Media, PA 19063	215-565-9070
Lehigh	David L. Dunbar Robert Leiby	Room 604, Courthouse Allentown, PA 18105	215-820-3085
Montgomery	Paul N. Reber	400 Markley Street Norristown, PA 19401	215-277-0574
Northampton	Joel Simmons Charles B. Forney	Route 4 Nazareth, PA 18064	215-759-6120
Philadelphia	Libby J. Goldstein	SE Cor. Broad & Grange Philadelphia, PA 19141	215-276-5182
New Jersey			
Atlantic	Charlene H. Costaris	1200 W. Harding Highway Mays Landing, NJ 08330	609-625-7000 X5447
Burlington	Richard L. Washer Ray Samolis	County Office Building 49 Rancocas Road Mt. Holly, NJ 08060	609-261-5050
Camden	Leslie A. Miller	152 Ohio Avenue Clementon, NJ 08021	609-784-1001
Gloucester	Robert W. Langlois Jerome L. Frecon	N. Delsea Drive Clayton, NJ 08312	609-881-1200
Delaware			
New Castle	Dean Belt (Agricultural Ext. Agent)	Rm. 034, Townsend Hall University of Delaware Newark, DE 19711	302-738-2506
	David Tatnall (Asst. Agent in Ornamental Hort.)	Rm. 033, Townsend Hall University of Delaware Newark, DE 19711	302-738-2506
Kent	Dave Woodward Bob Hochmuth	300 S. New Street Rm. 2206 Dover, DE 19901	302-736-1448
Sussex	Ted Palmer Derby Walker	RD 2, Box 48 Georgetown, DE 19947	302-856-5250



photos courtesy of Arthur Hoyt Scott Horticultural Foundation of Swarthmore College

Canada hemlock with the woolly adelgid and the fiorinia scale

TO SPRAY OR REPLACE – THE CANADA HEMLOCK

by Erica L. Glasener

Fifty to 75 years ago, Canada hemlock *(Tsuga canadensis),* the state tree of Pennsylvania, was planted in large numbers in the Delaware Valley. Adaptable in sun or shade, this graceful evergreen was an ideal choice for a specimen tree, an effective screen, or a formal hedge. Today, however, many of these once lovely hemlocks are sparsely needled, leggy and grayish in color because of the gradual devastation by two insects – the hemlock fiorinia scale and the hemlock woolly adelgid (commonly referred to as the woolly aphid). These insects are especially dominant in southeastern Pennsylvania, where many homeowners are faced with the decision of whether to invest the time and money in a rigorous spray program, which cannot be guaranteed effective, or to replace the infested hemlocks with other evergreens.

Since its discovery in Queens, NY in 1908 the hemlock fiorinia scale has become a serious pest of the Canada hemlock. Located on the underside of the needles, this elongated, armored brown and white scale is not immediately noticed. Easier to identify from a distance and the predominant pest in recent years is the woolly adelgid. This pest appears as white cottony masses, often persisting on the tree long after the insect is dead, usually located at the base of the needles.

Although populations can be controlled through repeated applications of insecticides, proper timing and complete coverage of the tree when applying a spray are a must for successful results. Research shows that incomplete application of the insecticide dimeothate (Cygon 2E), used to control hemlock scale, actually favors the resurgence of scale populations. Therefore, it is important to be familiar with the life cycle of these insects when planning an effective spray program.

woolly adelgid

Concealed under their white cottony mass, the females are black, oval, soft bodied and about two mm. long (about the size of a pinhead). The overwintering females begin laying eggs in the late winter or early spring and into June. From early April through June, eggs hatch and the young nymphs or "crawlers" begin feeding and growing in size until they finally mature in late September.

Late September to mid-October is the time when the insects are the most vulnerable and the best time to use an insecticide. Diazinon is a recommended control, when used at the rate listed on the label. An additional spray in June may help to reduce populations of developing nymphs.

scale

The hemlock scale also overwinters as adult females, which are recognized by a flattened, brownish-orange elongated covering, about 1.5 mm. long. The scale covering of the male is slightly smaller and white. In early spring the eggs are deposited under the protection of this waxy covering and take three to four weeks to hatch into nymphs. These nymphs or "crawlers" migrate to other new needles and feed for three to four weeks. It is during this nymph stage from mid- to late May that insecticides are the most effective. Dimeothoate (Cygon 2E) applied at the rate of two tablespoons per three gallons of water is the recommended control. After the feeding stage the insect molts into the next stage and another four weeks are required to complete maturity. The male emerges as a tiny winged insect, mates with the female and dies. Six to eight weeks later the female begins to lay second generation eggs. Controlling this pest is extremely difficult since all stages of the devlopment may be present during the entire growing season. A second spray in July should be applied if needed.

Dormant oils have also been recommended to control adult overwintering scales, the idea being to smother the insect before the tree starts to grow in the spring, that is, before buds break. These selected oils are highly refined and have had an emulsifier added to keep the oil suspended in the spray



Cedrus atlantica (Atlas cedar)



Calocedrus decurrens ▲
(California incense cedar)

Weeping Alaska cedar is an alternative to the hemlock. ▶



tank. A preferred mixture is one that combines oil with an insecticide such as ethion. Dormant oil should be applied in late March to early April with air temperatures above 45°F. and no danger of night freezing. The rate should be followed for evergreens (⅔ to ½ the normal rate) since hemlocks could be damaged by too much,but spray should be applied to the point of run-off.

alternatives to hemlock

While a carefully adhered to spray program can help to control and reduce populations of both of these insects it can be both costly and time consuming, especially for larger trees, which require special equipment not normally available to the homeowner. If you should decide to replace badly infected trees or are planning a new planting, select evergreens that require little or no spraying to remain healthy.

Two spruces are showing great promise as alternatives to the Canada hemlock, particularly when a large specimen is called for. The Serbian spruce, *Picea omorika*, is noted for its excellent foliage and narrow pyramidal growth and will eventually attain a height of 50 ft. The drooping branches turn up at the ends and expose the white undersides of the needles, providing contrast to the dark green foliage. The oriental spruce, *Picea orientalis,* is another trouble-free spruce that is similar in size and habit to the Norway spruce, *Picea abies,* but maintains both its deep green foliage and lower branches well into maturity. Although these spruces are not as shade tolerant as the Canada hemlock, and they are slower to mature, a lack of serious pest and disease problems combined with an adaptability to various growing conditions make these spruces well worth considering as hemlock replacements.

A conifer that tolerates more shade than either of the spruces and has much of the same gracefulness of the hemlock is the *Chamaecyparis nootkatensis* 'Pendula,' the weeping Alaska cedar, which can reach up to 90 ft. This tree is most noticeable for its pendulous sprays of branchlets that give it an elegant appearance in the landscape as a specimen tree or planted in a group as a screen.

The Canada hemlock is no longer the ideal choice for use as an ornamental evergreen when planted in gardens in southeastern Pennsylvania unless the homeowner is prepared to spray these trees on a regular basis. ●

Erica Glasener holds a bachelor's degree in ornamental horticulture from the University of Maryland. She is currently working for the Scott Horticultural Foundation of Swarthmore College, as the educational coordinator and editor of *Hybrid*, their newsletter. She was also recently appointed to serve on the Swarthmore Borough Street Tree Committee.

HEMLOCK SPRAY SCHEDULE

Mid-March to April
Dormant oil for scale (applied at the evergreen rate)
Mid-May to late May
Cygon for scale
Late June (optional)
Diazinon for adelgid
July (optional)
Cygon for scale
Late September to mid-October
Diazinon for adelgid

SCALE'S LIFE CYCLE

April: eggs, 20-30 days to hatch into crawlers
May: crawlers, this stage feeds for 20-25 days
June: about 20-30 days required for this stage of the scale to mature
Summer: about 60 days required for females to begin laying eggs
Fall: adults are present
Winter: adults are present



LETTERS TO THE EDITOR: *About Beech Tree Roots*

Dear Editor:

I am writing to express concern about an article that appeared in the January-February 1984 issue of *Green Scene* entitled "Destroying the Myths: Successfully Planting a Ground Cover Beneath a Treasured Beech Tree."

Placing one foot of top soil over the root system of a beech tree *will be* harmful to long-term survival of the tree. It will not cause instant death, but rather lead to a slow decline. The first symptoms may not be apparent for four to five years, but gradually the tree's foliage will begin to thin and the upper branches will begin to die back. I shall not press my case but ask your author to watch for symptoms of decline: an insidious process which is a result of oxygen deprivation and the buildup of toxic gases in the root zone area.

Gary L. Koller
Managing Horticulturist,
The Arnold Arboretum of
Harvard University

Dear Editor:

Beech roots require a high level of oxygen and are notoriously sensitive to any soil disturbance. Filling with one foot of soil over the root zone to accommodate a pachysandra planting as suggested in the article would limit the oxygen available to the roots thereby putting the whole tree under severe stress. This could lead to a gradual decline of the root system, dieback of the crown and eventual death of the tree. Likewise, repeated applications of herbicides like simazine could introduce another potential source of stress for the tree's root system.

Severe symptoms of decline may take five to ten years to develop. The first evidence of stress would be a reduction in vigor. By examining the ends of twigs, one can determine the increase in length that has taken place in recent years. A dramatic reduction in growth rate is an indicator of stress problems.

Many of the great european beeches of the Delaware Valley are already showing loss of vigor and decline, due to a combination of natural aging and environmental stress. These stress factors include drought, improper pruning and uncontrolled insect infestation and soil compaction.

We should do everything possible to keep mature beeches vigorous. Insect problems should be closely monitored and controlled. Trees should be watered in time of drought and pruning should be kept to a minimum and done with the utmost care. Most important, any disturbance or compaction of the root zone, which extends well beyond the drip line, should be avoided. Although in some instances beech trees may survive major soil disturbances, the odds are against it based on our experiences at the Morris Arboretum.

Paul W. Meyer
Assistant Director, Horticulture
Morris Arboretum of the
University of Pennsylvania

Dear Editor:

Two practices suggested in [Ana Thompson's] article that make me raise the question of whether they, over a period of time, may prove to be fatal to a beech tree. First, depositing twelve inches of soil may compact or even smother the beech roots. The second, applying a herbicide for three years, let alone one, may be toxic to the sensitive surface roots. The chemical reaction that the herbicide causes to prevent seeds from germinating in the soil or the chemical process that kills weeds or unwanted plant material may prove fatal to beech trees that already are under stress in the Delaware Valley.

George R. Clark

Ana Thompson replies:

I regret that my statement regarding the level of fill was so misleading, for I am fully aware of the devastating effect of compacted soil around any living plant. "Approximately one foot" is erroneous since it infers that one foot of topsoil was deposited as a planting bed around the base of the tree. This was not the case; we used a minimum amount of light organic soil in order to provide ample opportunity for gas exchange, and as my article states, just enough "to allow the pachysandra to take hold and still allow the surface roots of the beech tree ample room to breathe."

A representative of Miller Chemical and Fertilizer Corp., when queried about the use of their product simazine (Princep-4G), stated that "There is no danger of toxic effect when our product is used beneath an established tree according to label directions." If, however, one wants to be on the safe side in controlling weeds, I would advise mulching and hand weeding.

It has been five years since we planted the pachysandra, and although the tree has been treated for problems such as beech borer and gypsy moth, we have not experienced dieback.

Ana D. Thompson
Landscape Designer
Thompson Design Associates

foxglove: star of the biennial show (excelsior hybrids)

The spread of varieties in biennial flowering plants is quite broad and includes some varieties of sweet william, canterbury bells, anchusa, lunaria, delphinium (a perennial best treated as a biennial in zones 6 and 7), pansies, hollyhocks, and foxglove, the Shirley hybrids and last but not least the Digitalis Excelsior Hybrids.

All of these biennials may be sown in the Philadelphia area during June or early July (pansies excepted) and should make sizeable transplants for the cold frame by October or November. They also may remain planted out in permanent or semi-permanent locations in the perennial or the vegetable garden. The only precaution I take is a light covering of salt hay as protection from winter sun and wind.

From a standpoint of spectacular display in June of the following year the star of the show, to my mind, is the Digitalis Excelsior Hybrids; they are pictured here in combination with *Anchusa italica* 'Dropmore.'

Foxglove seed is rather small and should be sown in seed pans or boxes in mid-June or early July. I use 6- or 8-in. terra cotta azalea pots. The soil mix for this sowing should be "Promix" or "Jiffy Mix." After sowing seed thinly, cover with a ⅛ in. layer of vermiculite and immerse the container in a pan of water 1½ in. deep and let osmosis go to work; never water from overhead. The seed pan should be kept in partial shade and never be allowed to dry.



photo by Charles Becker

Foxglove and anchusa perennial border.

Transplanting is done after the second (or, true) leaves have formed, into a shaded cold frame or a garden location in partial shade or only getting morning sunlight. Over the winter the cold frame is covered with lath shading and a 2-in. air space at the rear allows for air circulation and prevents overheating from winter sun until April. Weather permitting, it is time to transplant from the frame to permanent locations in the garden. Foxgloves make a mass of fine roots and move easily. Being tall plants each one requires a stake 4 to 5 ft. tall.

If you have had foxgloves before, but not Excelsior Hybrids, you will be pleased to know that unlike other varieties the Excelsior flowers hang all around the stem and are not one-sided as of old; these hybrids do **not** reproduce true seed.

Try them with pleasure and satisfaction.

Sources:

George W. Park Seed Co.
P.O. Box 31
Greenwood, SC 29646

White Flower Farm
Litchfield, CT 06759

Charles Becker, Jr.

●

Charles Becker, Jr. taught a "Green Thumb" course at night at the Main Line School for 34 years.

coix lacryma-jobi

Coix lacryma-jobi (job's tears) is a tall, tender annual grass that grows well in ordinary soil. In some Asian countries the seed is ground for flour. Here, they are widely grown for their large, hard and shiny seeds that mature in the early fall into variegated shades of gray and black. When the seeds are dried they are strung as necklaces. Use a strong nylon thread with an ordinary needle to string them, and a thimble to push the needle through.

continued



photo by Jan Riemer

Coix lacryma-jobi necklace

Plant job's tears in early spring in partial shade.

Sources:

Nichols Garden Nursery
1190 North Pacific Highway
Albany, OR 97321

Thompson & Morgan
P.O. Box 100
Farmingdale, NJ 07727

Jan Riemer

●

Jan Riemer is a free-lance writer and a frequent contributor to *Green Scene*.





the plant finder



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If you can't locate a much wanted plant send you name and address (include zip), the botanical and common name of the plant to Plant Finder, Green Scene, PHS, 325 Walnut St., Philadelphia, PA 19106. People who have the plants or seeds you want will contact you to make arrangements about selling or giving them away, mailing, etc.

▼

WANTED

Helichysum petiolatum: a lovely grey-foliaged plant that I last saw cascading out of antique urns at Sissinghurst (Kent, England). I have not been able to locate it in the United States.
Contact: Patricia P. Tyson, Maplewood & Atlee Roads, Wayne, PA 19087



LOVE IN BLOOM
by Jan Riemer

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Bruhilda"

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A wreath and ribbons, blossoms and a pretty dress get Marie Radebaugh in tune for a May Day party. See page 8.



THE green scene

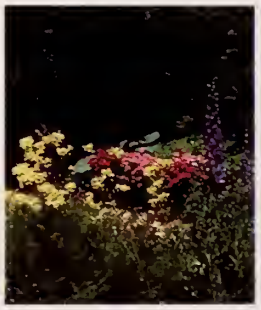
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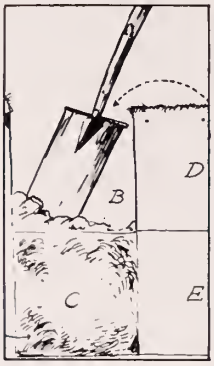
Sir John Thouron's Gardens in Unionville, Pa. (June garden.)
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Front cover: Border outside the stable wall. First flowers visitors see at the estate.
photo by Dick Keen

Back cover: Rock garden
photo by Dick Keen

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Three Perennial Gardens
How They Do It

by Anne S. Cunningham



photo by Dick Keen

Sir John Thouron's herbaceous borders provide a magnificent view from the front door of the house. The pink evening primroses *(Oenothera* 'Rosea Mexicana,' center left) ebb and flow onto the paths, all a part of Sir John's nonlinear style of planting. (June garden.)

From a distance, a good perennial garden appears to be a colorful, effectively arranged group of flowers. Up close, a good perennial garden becomes a work of art, a canvas reflecting the artist's love of subject, dedication, study and hard work, even glimpses of the artist's personality. We visited three different perennial gardens and found their style and content were as varied as their owners: Sir John Thouron, Susie Wilmerding, and Phyllis Williams.

Sir John Thouron's estate gardens

Sir John Thouron's large estate gardens, situated throughout his property in the rolling hills of Unionville, Pa. are stately and elegant. Sir John spends much of his time showing visitors what he and many others consider to be "one of the finest collections of rare and unusual perennials." Followed closely by a young black labrador named Pearl, he points with pride to a hardy verbena he developed himself, or to a lovely white *Salvia sclarea* he calls the Vatican salvia because the original clipping was snipped by a friend from the Vatican Garden. As each plant is named, its place of origin follows the name, for like many collectors of rare treasures, Sir John enjoys his plants' provenance as much as he enjoys their beauty.

His gardens are full, deep, colorful and intricately planned. Looking down the main path of the large double herbaceous borders facing the house, one senses an almost lyrical ebb and flow. These two gardens with a wide path in between each measure "about a pitching wedge" says Sir John reflecting another favorite hobby. Approximately 75 yards long, the central path used to be grass but was changed to stone because perennials along the edges were decapitated each time the grass was mowed. Sir John strives for fluid design rather than rigidity, encouraging low creeping perennials in the front of the garden to grow out onto the path and to soften the visual effect.

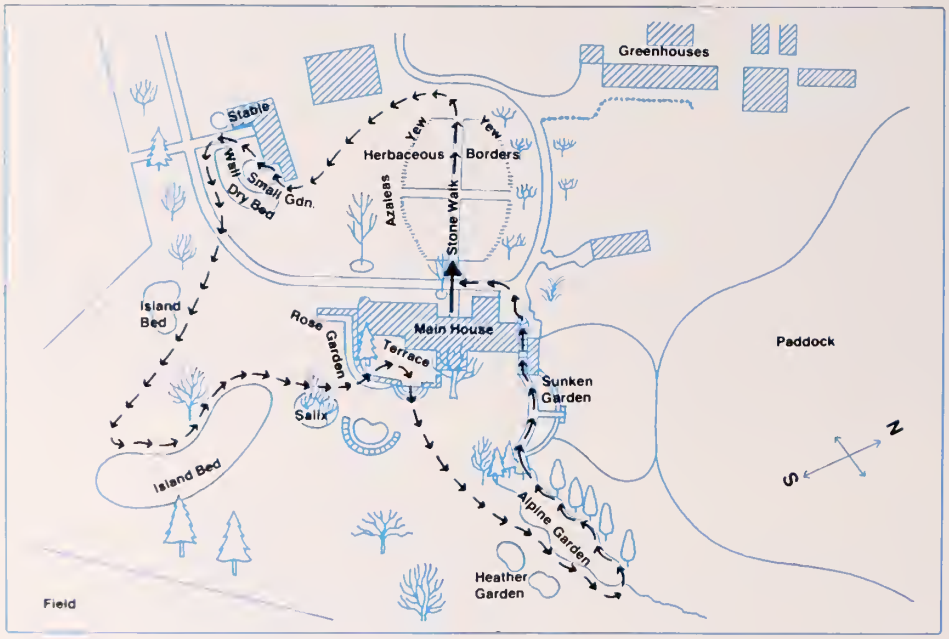
"I wanted to produce something to enjoy that would also teach," he explains with pride, pointing to a crescent-shaped perennial garden (dry bed) about 50 yards in length along the outside of the stable wall. Included in this garden are a favored *Crocosmia* 'His Majesty,' *Malva alcea fastigiata, Anemone japonica, Verbena* apple blossom, *Evolvulus glomerata,* several species of echinopsis, and much more. Inside the stable wall is a kidney-shaped garden created specifically for those visiting cynics who say, "Sure, you can have wonderful perennial gardens because you

continued



photo by Dick Keen

Sir John shows visitors the large perennial garden in a field below the house. Abundant groupings of flowers range from a few inches tall in the front to more than six feet tall in the back of the bed. (August garden.)



An idyllic rock garden displays Sir John's love for "surprises just around the corner." Massive plantings of yellow rock rose *(Helianthemum nummularium)* in the foreground alternate with delicate stands of *Dianthus* 'Rachel' and special alpine treasures half-hiding along a twisting trail. (August garden.)

have gardeners, but what can I do by myself?" This garden of easy, attractive perennials is his answer. The more compact plants include veronica, *Helianthemum campanula*, hardy geraniums, and *Clematis integrifolia*, a small non-climbing purple clematis. Taller plants are daylily, salvia, potentilla, yarrow, and one of his favorites, dianthus. Delicate small yellow poppies *(Hunnemannia* 'Sunlite'), *Euphorbia* 'Summer Icicle,' and a red/coral *Alonsoa linearis* along the front are among the highlights. Sir John uses very few annuals and particularly dislikes petunias and zinnias. But he is a firm believer, as he puts it, that "you can hardly clash colors," so almost every color appears in his gardens, though he is very careful of proportions and positioning.

The summer gardening staff consists of four gardeners and two apprentices. Jock Christie, the estate's head gardener for the past 20 years, describes in his gentle Scottish accent the care given each plant from its beginning. Many are started from seed in Jiffy Mix, then are given fertilizer of liquid seaweed after they've been pricked off. The perennials are planted in several different areas to determine where they grow best. In autumn, if necessary, the plants are divided or moved. In winter they are given a light covering of salt hay to prevent heaving in the course of seasonal freezes and thaws. Every spring the gardeners apply bone meal, and on alternate years, cow manure. Instead of using a mulch, Sir John prefers to have the gardeners "work the soil," continuously turning it to keep it porous and to eliminate weeds.

Sir John is noncommital about his favorite seed sources, though he declares Alan Bloom of Diss, Norfolk, England, to be the "biggest and best perennial grower in the world," and points with pride to a cluster of pink *Astilbe simplicifolia* from Bloom. If you plan to order from Alan Bloom you will need an import license.*

The central path used to be grass but was changed to stone because perennials along the edges were decapitated each time the grass was mowed.

Two more perennial gardens in the field below the main house create a magnificent transition between the manicured property around the house and the farmland and hills beyond. Here six foot tall *Solidago* sp., *Achillea filipendulina* 'Gold Plate,' and many others are as effective from a great distance as they are up close. At the front of these gardens is a fast-spreading, blue-flowered ground cover from Florida, *Evolvulus glomerata*, that remains in bloom year-round if it is taken into the greenhouse in the fall.

Sir John times his perennials to peak all at the same time, generally the second week in June, when he has a large party to celebrate the glory of it all. Even the terrace steps are a tribute to his love of perennials, as they are carpeted with elegant miniatures such as *Laurentia minuta*, and *Rhodohypoxis* spp. in white, pink, and dark pink, which Sir John received from Lady Serena James of Richmond in Yorkshire, England. As the flowers drop from his perennials, they are often replaced by interesting seed pods or by a second bloom. Although the gardens peak in June, the constantly changing vista generated by his perennial gardens is vastly superior to anything possible with a static collection of annuals.

Everywhere a visitor looks there is yet another treasure trove of special perennials. One whole garden is devoted solely

continued

*See "The Landscape According to Alan Bloom" by Christopher Reed, *Horticulture*, May, 1983, p. 37.





photo by Dick Keen

The stone stable is the background for luxurious groups of perennials that greet visitors as they arrive. The garden contains some of Sir John's favorites, e.g., the constantly changing *Crocosmia masoniorum* (back right). Behind this garden is a low wall; between the wall and the stable is a small kidney-shaped garden showing that even a limited space is suitable for an effective perennial display. (June garden.)

to pink and blue *Delphinium* 'Pacific Giant' and *Echium* 'Blue Bedder' (Sutton's). In still another area totally hidden from the house is an idyllic rock garden with water cascading through the center and pockets of rare and unusual perennials behind each rock and around each bend. In a group of delicate dianthus, Sir John points with pride to *Dianthus* 'Rachel,' which he helped develop. Clusters of *Helianthemum nummularium* grow as if they've been there forever.

The effect of Sir John Thouron's magnificent gardens is literally stunning. To put perennial gardens back in perspective, the next garden is tended by just one busy person.

Susie Wilmerding's ever-changing garden

Susie Wilmerding is a bright, energetic gardener with two young sons and a variety of dogs competing for her time and for space in her yard. She raised perennials for several years with only moderate success until she realized the soil and poor drainage on the property were defeating all her efforts. Tackling the problem, the Wilmerdings dug out the entire area of the perennial garden and incorporated peat moss, super phosphate, and two tons of coarse sand to promote proper drainage. The garden has flourished ever since. The improved porous soil requires watering only a few times each summer. Says Wilmerding, "Good soil conditions are the most important step in starting a perennial garden. Roto-tilling alone is a giant waste of time if the soil consistency isn't right."

"Good soil conditions are the most important step in starting a perennial garden. Roto-tilling alone is a giant waste of time if the soil consistency isn't right."

A clematis-covered post and rail fence defines the yard and provides the outside limit for her garden, which measures approximately 8 ft. by 40 ft., as it curves around two sides of the rectangular property. Everything is planted in relation to the fence, with daylilies, *Lythrum virgatum* 'Morden Pink' and other bushy flowers jammed together in the back for a full effect. The inside limit of the garden is defined by two rows of bricks so grass won't "creep into the garden." Most of the garden faces south, for even though some perennials can tolerate shade, Wilmerding prefers having a greater selection by using sun loving perennials. With the exception of blue salvia, annuals are never used because they "grow so fast, they flop all over the small perennials before they can grow." Summer maintenance is limited to deadheading spent blossoms. She avoids constant weeding by using a thick mulch of shredded cedar bark.

"I try to have something in bloom at all times. It's not that hard having flowers from April to October, or even longer if you extend the life of your garden by using bulbs like tulip and scilla," says Wilmerding describing her garden. "I would never have just neat rows of plants. I mix as many textures as I can and try to be careful of colors. I use minimal orange, basically pink, white and blue. Tulips are the ony red," she concludes with an encompassing sweep of her hand toward the garden.

Wilmerding's desire for many varieties is

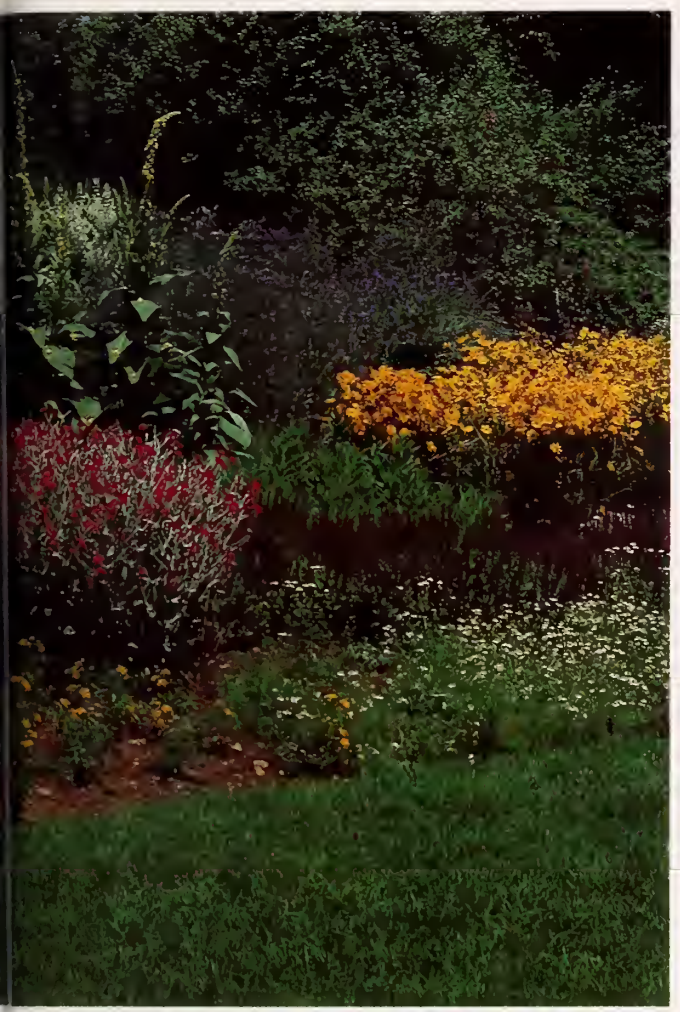




photo by Edmund B. Gilchrist, Jr

A good looking tool shed and weathered picket fence are unassuming backdrops for Susie Wilmerding's warm, casual gardens. (August garden.)



photo by Edmund B. Gilchrist, Jr

Varying sizes, colors, textures and contrasts make Wilmerding's garden an oscillating, vibrant study of perennials. (July garden.)

well focused, not arbitrary. She studies which perennials to grow from seed, like shasta daisies *(Chrysanthemum x superbum* 'Little Miss Muffet'), columbine *(Aquilegia* 'McKana Hybrids'), and foxglove *(Digitalis* 'Foxy'). The perennials she buys already established often come from Waterloo Gardens or Bluestone Perennials in Madison, Ohio. Rather than take someone's cast-offs or divisions of a flower that would be the wrong color, she will go out and buy the same flower in a more compatible shade just so it will be right in her garden. Even after a perennial blooms, if it's not right she takes it out. Wilmerding changes a good portion of her garden each year, trying to make it exactly as she wants.

Unlike Sir John Thouron's gardens which are chiefly for viewing, Susie Wilmerding's garden is used for cutting as much as for visual pleasure. Columbine in spring, a variety of hybrid lilies in summer, and asters *(Aster x frikartii* 'Wonder of Stafa') are among her favorites, providing continuous profuse blooms for flower arrangements.

continued



Phyllis Williams effectively uses white perennials, which show up well from a distance, such as these Madonna lilies. (June garden.)

Phyllis Williams – working toward perfection

The final garden is a curious combination of the previous two. It is planted for visual pleasure rather than for cutting, and is tended by one dedicated gardener who takes pride in her accomplishments.

Phyllis Williams has been working on her perennials for 30 years. At first her garden resembled a proper English border, but she has turned more and more toward native plants; "away from Gertrude Jekyll" as she describes it.

Williams's relationship with her garden is something like that of a strict school teacher with her students. Her perennials are planted symmetrically, precisely scheduled, and expected to behave. When her yarrow grew taller than anticipated, she sought an explanation. "Dr. Whiting at Temple's School of Horticulture says tall yarrow indicates too much nitrogen," she explains, "but it could be due to the rainy spring when there was too little sun."

The crescent shaped garden measures 70 ft. by 11 ft. Size alone suggests the need for a lot of maintenance, though Williams says she spends only one day a week in spring and fall, one day a month in summer working on her garden. Weeding is habitual, and even as she shows visitors around, she bends down to pull out offending intruders.

She waters the garden only once every week or every other week. "Most people water too often for too short a time," says Williams. When she waters, she leaves the hose on for hours, then digs down deep into the ground to make sure the soil is thoroughly wet at the roots where it is needed.

In spring she applies granular 5-10-5 fertilizer, scratching it into the surface as soon as the soil warms up. The only other fertilizer application is in May. In fall she spends time dividing her perennials. Asters are divided annually, others when they need it. Williams finds rooted cuttings work better than divisions, and she does cutting propagation in her greenhouse near the garden. A few favorites such as goldenrod *(Solidago canadensis)* are grown from seed.

Williams' garden appears full of solid primary colors. With the exception of the pastel yellow yarrow *(Achillea taygetea)*. The colors are strong like red (dark red *Monarda to attract hummingbirds), not red-orange; or deep purple Japanese iris, not violet. There are many whites including the daisy-like flower of the woody Chrysanthemum nipponicum* and profuse *Gypsophila. Hemerocallis,* a tall bushy thalictrum with maidenhair-like leaves, creates an effective backdrop behind the carefully organized flowers in the front of her garden.

To have a successful garden, Wiliams says, people should "read, read, read." She advocates study and careful planning as well as frequent visits to successful gardens. She emphasizes, "The trick is to *stick* to a plan. Lay it all out on graph paper, then make overlays of seasons and colors. Make a plan of your garden and stick to it, changing only mistakes of height, color, whatever." She has taken numerous courses and is constantly seeking additional information to improve her garden. Her dedication to the intellectual challenge of creating a fine garden is as impressive as her dedication to the horticultural aspects of it.

Phyllis Williams, Susie Wilmerding, and Sir John Thouron all have greenhouses. No one seems sure whether love of perennials created the need for a greenhouse, or whether propagating plants in a greenhouse led to a deeper understanding of and love for perennials. They all agree their greenhouses are vital to their perennial gardens.

They also agree that they "can't wait until next summer." No matter what time of year it is, the dedicated perennial gardener can be seen looking wistfully at some flower and saying "*Next* summer, this will be"

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Anne Cunningham is a free-lance writer who specializes in horticultural subjects

Making a Career of Perennials

by Jane Pepper



photos by Edmund B. Gilchrist, Jr.

Lee Lefkoff and Rob Montgomery check root development of spring potted astilbe. They are experimenting to compare root development between fall and spring planted astilbes.

Career changes appear commonplace among Delaware Valley growers of flowering herbaceous perennials. Cliff was once a missionary; Bill a research chemist and Rob a corporate executive. Last winter, however, their talk was not of Indians in Peru, of test tubes and statistics, or of office equipment, but of the more than 600 perennial varieties on their 1984 summer sales lists.

Robert W. Montgomery Landscape Nursery

Take Rob Montgomery, for example, the one-time corporate executive who now owns a highly successful garden center/nursery/landscaping business, Robert W. Montgomery Landscape Nursery near Chester Springs, Pa. In 1980 Montgomery sold 4,000 perennial plants. This year he has 30,000 for sale. And these are not what Rob calls the traditional "scrawny, stunted" perennial plants. Montgomery sells the majority of his perennials in one-, two- or three-gallon pots. A few wildflowers, whose root systems will rot easily, he pots up in one- or two-quart cans, a size in which most perennials have until recently been sold.

The challenge in selling perennials is, as Montgomery sees it, to produce for his sales area plants that allow the customer to visualize their eventual size and beauty in the garden. With annuals the retailer's job is easier because homeowners are accustomed to flowering six-packs and many of the plants are so common they can visualize the ultimate product. With perennials many customers are not familiar with the plant at the height of its glory so Rob is gradually adjusting his selling techniques. This summer, for example, Montgomery's perennials will be separated from the annuals and sold alongside nursery stock to encourage customers to consider them as permanent plantings. Eighty percent of Montgomery's perennials are purchased in flower. By growing them in large cans he can provide his customers with spring-, summer- and fall-flowering plants in full bloom, for sale from late April through September. Like other perennial retailers, Montgomery is trying to spread traditional spring and early-summer perennial sales into a summer-long activity.

Montgomery also goes to great lengths, as do other garden centers such as Waterloo Gardens in Exton and Devon, to provide customers with correct botanical names and information on plant height, flower color and soil preference. Where possible Montgomery also includes a picture, and suggests locations in which the plant could be used, in shade, at the back of the border, or between paving stones, for example.

In the summer, as customers are purchasing daylilies, gaillardias and lady's mantle in full bloom, Lee Lefkoff, the perennial and greenhouse manager, and Rob are planning their strategy for the following year. Those varieties that germinate readily they will sow at the nursery from midsummer onwards. Plants such as delphinium, astilbe and artemesia that are harder to germinate, they will purchase as plugs – small plants raised from seed and sold by wholesalers for potting on at a retail nursery. Growing his own from seed is the most

continued

Making a Career of Perennials

continued

economical way for Montgomery to raise a perennial; plugs are the next cheapest. The range of varieties offered in seeds and plugs is limited.

Many perennials, including those that cannot be propagated from seed because they are cultivated varieties, Montgomery purchases as bareroot divisions from wholesale growers from Pennsylvania to Michigan, in early fall or spring. Hostas, daylilies, and iris, for example, are potted up bareroot at Montgomery's in September. Depending on wholesale growers for your bareroot divisions can be a headache. For summer 1984 sales, Lee placed Montgomery's orders in August 1983, only to receive 30% cancellations on the orders. Even after reordering from alternate suppliers, she was not able to complete her original order. For a retailer an alternative to purchasing bareroot stock from wholesalers is to divide leftover stock in late summer and repot it for sale the following year. As Rob pointed out, perennials thus increase in value if they remain unsold. Container grown nursery stock on the other hand decreases in value because it must be repotted and handled several times before it's once again suitable for sale.

Russell Gardens

Cliff Russell is my idea of a "walking encyclopedia," toting around in his head the growth and propagation requirements of the 900 varieties of perennials he and his family offer for retail sale at Russell Gardens. Perennials may seem a far cry from missionary work in Peru, but three generations of Russells have earned their living from the same soil in Churchville, Pa. Cliff's grandfather, who came to Bucks County from Ireland in the 1880s, started a truck farm. Later the family grew pansies for the neighbors. At the peak of the pansy parade they were selling 25,000 boxes each spring. Cliff's brother Al started the house plant habit and later offered his customers a small line of field-grown perennials. In the early '70s Al started selling container-grown perennials, and in 1976 Cliff returned from South America to join the family business.

Operating a field-grown perennial business is tricky because gardeners are in the mood to buy as soon as the weather turns warm. The grower, however, can't dig until spring arrives so he ends up with a massive last-minute digging operation and frequently sustains considerable losses due to transplant shock. Five years ago the Russell family began to offer all their perennials in containers. In 1983 they sold 150,000 plants, offering 700 varieties wholesale and some 900 retail, including 150 varieties of herbs. Some 75% of their business is wholesale.

Russell Gardens is family managed and operated for most of the year and in the peak months the work force expands to 20. June and July are devoted to sowing seeds and dividing perennials such as hosta, geum, daylily and filipendula. During August and September, the famiy is hard at work transplanting the seedlings. The small native wildflowers are moved into one-quart pots; the other plants into two-quart pots, a size Cliff says produces a better-looking plant for their spring sales than the one-quart size. By October all the pots are stashed away in hundreds of cold-frames. At Thanksgiving they spray the plants with a combination insecticide and fungicide and cover the frames with sashes, which will not be removed until March.

In 1980 Bill could not give away ornamental grasses. Today he offers 100 varieties including liriope, and can hardly keep up with the demand.

During the past few years technological advances such as biotherm heating, soil mixers and a seeder have been introduced at Russell Gardens. The latter, a major investment ($4,500) purchased in fall '83, places seeds directly into cell packs. Cliff obtains new plant varieties not only from commercial growers but also from plant societies such as the American Hosta Society and the American Rock Garden Society, especially from members of the Delaware Valley ARGS chapter. Cliff is a true collector, with some 160 varieties of sedum and 180 varieties of hens and chicks in his home garden. Also, Cliff is a firm believer in sharing new varieties with both home and commercial growers, and has little patience with the growers who are not willing to share their stock, thereby creating high-priced, premium plants.

Bill Mitchell

From the ex-missionary in Churchville I travelled to visit the ex-research chemist in Chadds Ford. Trained as a plant physiologist, Bill Mitchell was studying plant growth regulators when he decided to leave his position in the research department of a major chemical company to become a full-time perennial grower. The decision to leave the research bench was easy; Bill found the time lag between his work in the lab and the final product too frustrating. The first few years in this new business, however, were very hard. For the first couple of years he could not afford to run a car and worked his land from dawn till dusk, depending on neighbors to help him fetch groceries and supplies.

Bill Mitchell is a specialist, currently offering five main groups of perennials: daylilies, hostas, astilbe, iris (Japanese and Siberian) and ornamental grasses. In front of the house he offers his customers a sample of his 1,050 varieties in landscaped beds. In the rear the land falls away to a stream and here Bill has built terraces for growing areas. Gradually he is advancing down the hill, one level at a time, with the help of a bulldozer in the large areas, but frequently just with his pick and shovel, creating display gardens and growing beds. The American Hosta Society Annual convention, to be held in the Delaware Valley in 1987, has encouraged him to focus his efforts on the shady areas. Everything must be shipshape for the visitors and he wants to be able to offer "those specialists" a wide selection of "large plants."

For the first couple of years Bill aimed at the retail market until he discovered this to be financially impractical because, with his current field-grown operation, most customers required service far in excess of what he can hope to make in retail sales. Thanks to a visit from the local chapter of the Pennsylvania Nurserymen's Association in July, 1982 he has now become known to local nurseries and landscape contractors who deal with him wholesale. The client with the small- to medium-sized commercial business is his ideal customer, although he still handles retail orders for large plantings. Mail order houses also buy from Bill but frequently the size of their order is hard to handle with only five acres of growing space. Looking to the future Bill hopes to be able to move into container grown stock because more and more landscape jobs are now put out to bid specifying container-grown plants. Before he makes his move, however, he recognizes he must install an irrigation system.

Daylilies represent Bill's largest sales and with some 30,000 registered cultivars to choose from he now offers approximately 700. Using the American Hemerocallis Society popularity poll to guide his



Dividing perennials is a springtime operation for Bill Mitchell.

selections, he buys new developments from breeders, usually about 20 cultivars each year. In astilbes Bill offers 30 cultivars but within this group he bemoans the muddled nomenclature, resulting from the tradition of offering seed-grown pink, white or red astilbe.

In 1980 Bill could not give away ornamental grasses. Today he offers 100 varieties including liriope, and can hardly keep up with the demand. With 120 varieties of hosta, 60 varieties of Japanese iris and 40 Siberian iris, in addition to the daylilies, grasses and astilbes, you would think Bill Mitchell's list was long enough. But no, like Cliff Russell he has collector's fever and it hurts him not to be able to grow everything he gets his hands on.

With sales of 20,000 plants in 1983 Bill responded to my question "Are you making a living?" by saying "Yes, but barely ..." For him the jury is still out on the economics of a five-acre perennial operation. Calculating his expenses on new plants, fertilizer and other supplies is easy. Harder to determine is the overhead – land use, taxes and his dawn to dusk back-breaking days. The results from his daily work, however, are highly visible and that gives him great satisfaction compared to the frustrations he experienced at the research bench.

Throughout the Delaware Valley growers seem to think they see only the tip of the iceberg on the perennial market and are gearing up for bigger and better offerings to take care of the anticipated demand. The perennial passion seems rampant in other states too, and last July the first Perennial Plant Symposium was held at Ohio State University, Columbus attracting participants from 28 states and Canada. Following the two-day symposium a steering committee was delegated to draft the purposes, by-laws and a constitution for an organization now called the Perennial Plant Association. Both voting and non-voting memberships are available in the Association, with dues, on a sliding scale based on gross volume of nursery sales, ranging from $25.00 to $300.00. The second Perennial Plant Symposium will be held July 24-26, 1984 in Columbus.*

*For more information contact Steven M. Still, Perennial Plant Association Committee, Department of Horticulture, The Ohio State University, 2001 Fyffe Court, Columbus, OH 43210-1096.

Preparing a Perennial Bed

When planning a perennial bed Miriam Anderson, perennial grower at Snipes Farm and Nursery, Morrisville suggests you prepare the beds before shopping for the plants. At the garden center look for new growth to be sure the plants are healthy. When you get the plants home, put them into the ground as soon as possible

Delaware Valley Retail Sources for Flowering Herbaceous Perennials

Listed below are retail operations in the Delaware Valley that carry a minimum of 200 varieties of perennials:

Feeney's Garden Center and Nursery
1134 Bustleton Pike
Feasterville, PA 19047
(215-322-4300)

The Flower Farm
453 Bayard Road
Kennett Square, PA 19348
(215-444-5659)

Fort Washington Garden Mart
Bethlehem Pike
Ft. Washington, PA 19034
(215-646-3336)

Meadowbrook Farm
1633 Washington Lane
Meadowbrook, PA 19046
(215-887-5900)

Robert Montgomery Landscape Nursery
Box 67-C, Route 113
Chester Springs, PA 19425
(215-363-2556 or 644-3406)

Mostardi's Nursery and Greenhouse
4033 West Chester Pike
Newtown Square, PA 19073
(215-356-8035)

Rose Valley Nurseries
684 S. New Middletown Road
Media, PA 19063
(215-872-7206)

Russell Gardens
600 New Road
Churchville, PA 18966
(215-322-4799)

Snipes Farm and Nursery
US Route 1, Lincoln Highway
Morrisville, PA 19067
(215-295-1138)

J. Franklin Styer Nurseries
US Route 1, Box 98
Concordville, PA 19331
(215-459-2400)

Styer Garden Center
Route 1
Concordville, PA 19331
(215-459-4040)

Waterloo Gardens
136 Lancaster Avenue
Devon, PA 19333
(215-293-0800)
or
200 N. Whitford Road
Exton, PA 19341
(215-363-0800)

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Jane Pepper is the executive director of The Pennsylvania Horticultural Society. She writes a weekly gardening column for the Sunday Books/Leisure section of *The Philadelphia Inquirer*.

PLANNING THE PERENNIAL BORDER

by Viola K. Anders

Take a good critical look at your perennial borders. Are they giving you the pleasure you hoped they would? Or do they need improving? Every so often the time comes when we should re-plan our flower beds, or plant new ones. With the spring blooming perennials still in mind and the summer ones at hand, now is the time to get paper and pencil and start planning.

If we thought of ourselves as artists as we approach this task, we would be putting the job in the right perspective; we are painting a picture. Not with paints as the artist does, but with plants. In fact ours is a more difficult job. The artist can mix his paints to get the colors he wants. He can draw in the lines, forms and textures. These elements of design are, however, already established in the plants we will be using. We must, first of all, recognize them, know what they can do for our designs, and place them in the border keeping in mind the principles of design to create the effect we want, a work of art, not of a collection of haphazardly placed plants.

preparing a plan

Before we get involved in artistic details, let's take a look at the mechanics of preparing a plan. It is helpful to make a plan on paper before starting to plant a new flower garden or re-do an established one. The step-by-step process establishes in one's mind the principles involved in placing the various kinds of flowers within the border. After a little experience a lot of the paperwork can be eliminated.

Step 1: List your favorite perennials. Include facts about each plant with which you are unfamiliar: height, blooming time, colors available, etc. For a model of "how to," see the accompanying "Sequence of Bloom" chart, which includes some of the perennials that grow satisfactorily in the Delaware Valley. Any blooming schedule is only approximate. Dates vary with location, season and the various cultivars within a species. To compile a sequence for your particular location for future use, keep a blooming calendar for several years. I find a small engagement calendar is useful for this. As each flower comes into full bloom, I jot its name down on the calendar; this process just takes a few minutes several times a week during the blooming season. After doing that for several years you can determine average blooming dates. You may wish to note the date each is finished blooming. Such information is helpful in determining what plants will be in bloom at the same time and aid in planning color schemes.

Step 2: Measure your actual flower border and outline it on paper to scale. Be exact; I work with a scale of ½ inch on paper equals one foot of the border. This scale leaves enough space to write the flower names and cultivars on the plan, making it easy to see what you have placed where. If you are remaking a border, mark on the plan the location of the established plants that you will not want to disturb.

Vertical lines provide emphasis. They give a feeling of excitement, aspiration and dignity. Horizontal lines are more passive, restful and softening.

Step 3: Select and list two or three dependable blooming perennials for each few weeks throughout the blooming season. These will be your successive accent plants and will provide the main color from April until fall. For example:

Mid-April - daffodils, species tulips, pansies
Late April - Darwin hybrid tulips, pansies
Early May - mid-season tulips, *Iberis sempervirens,* pansies
Mid- to late May - German iris, lupines
Early to mid-June - oriental poppies, foxgloves, sweet williams
Late June - astilbe, yarrow, delphiniums
July - perennial phlox, lilies
August - *Sedum spectabile,* annuals
September - hardy asters, *Anemone japonica,* annuals
October - chrysanthemums

Spot these, with repetition, throughout the border, starting in April and continuing with each season in order (see Figs. 1, 2 and 3). For a better show, plant groups or drifts of most kinds instead of single plants. The size of these groups should be in scale with the overall size of the border. In a large border (50 ft. x 6 ft., for example) there could be three plants in a drift for plants the size of lupine, columbine, yarrow; or six for smaller plants such as pansies, primroses, etc. One plant may be sufficient for more robust growers such as peonies or oriental poppies. For bulbs, twelve tulips, three to five daffodils or three lilies would make a showing. Outline the drift around each name on the plan. It should be of a size and shape that will accommodate the number of plants you want to plant in that drift. For example, one peony plant will usually occupy a round space about two to three feet in diameter, three delphiniums or foxgloves an oblong space three feet by one and one-half feet since the spikes will make a showier drift if plants are in a row instead of in a circle. (See Fig. 4.)

Step 4: Being assured now of the dominant or accent bloom throughout the border for each season, fill in the empty spaces with less showy plants. Follow the same procedure as before, selecting a few for each blooming season. Again, provide some repetition. (See Fig. 5.)

Step 5: Since there are not too many late summer and fall blooming perennials, I include some annuals to give color during this season. As the foliage of spring flowering bulbs dies down in late June, open spaces become available for planting annuals. They can also be planted where biennials have finished blooming. The plan on page 14 is a copy of the original plan showing annuals in the drifts that were occupied by tulips, English daisies and myosotis. The tulip bulbs are left in the ground for bloom next spring. The annual plants are planted between the bulbs. The biennial plants (in this case the English daisies and myosotis) will be pulled out when they are finished blooming since they will then have completed their life cycle.

line

Those are the simple steps in making a plan. If, however, we are going to play the part of an artist, we need to consider the elements and principles of design when deciding what to place where. The two most important elements are line and color. In line we are most concerned with vertical and horizontal. Examples of perennials providing vertical lines are the obvious flower spikes of delphinium, foxglove, lupine, and others. Vertical lines provide emphasis. They give a feeling of excitement, aspiration and dignity. Horizontal lines are formed by the flat-headed flowers such as yarrow or sweet william, or group plantings of perennial candytuft or *Dian-*

photos by Viola K. Anders

A.



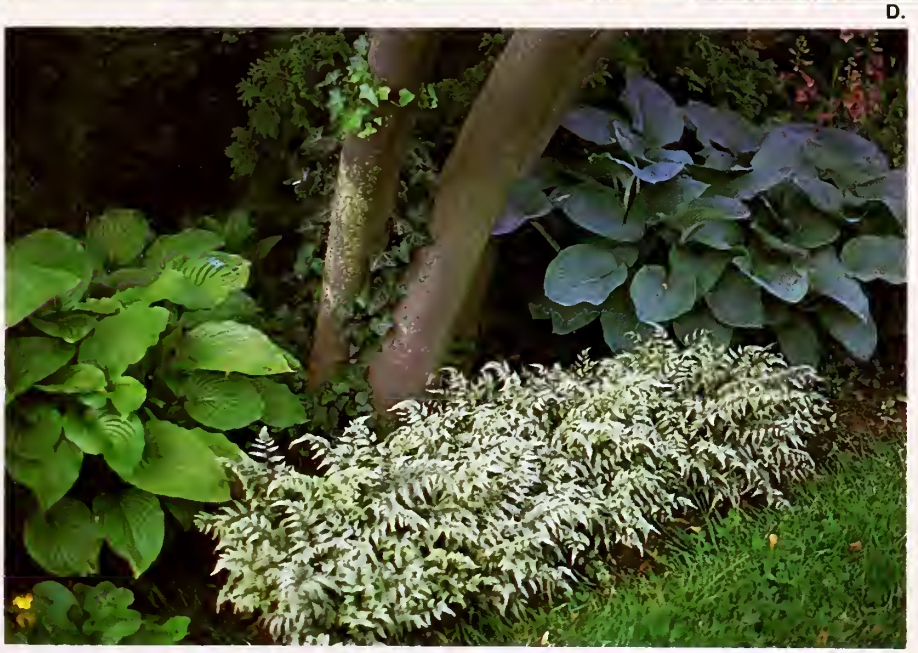
B.



C.



D.



A. The garden border in spring featuring Darwin Hybrid tulips and pansies. Note the effect of group planting and of using one color to a group.

B. White spikes of Pacific Giants, 'Galahad Series,' accent plants against a green background.

C. June bloom in the perennial border. Note the attention-getting vertical lines separated by the more passive, restful horizontal lines.

D. Foliage plants provide nice texture and color contrasts to enliven a shady section of a garden. *(Hosta plantaginea,* Japanese silver fern *[Athyrium],* and *Hosta glauca)*

thus plumarius. These horizontal lines are more passive, restful and softening. Tall, spiky flowers should be spaced throughout the border for emphasis and to attract attention. Because they stand out, they should be placed carefully to achieve balance in the border. Separate them with plants providing the horizontal lines to hold the viewer's attention and allow the eye to rest, thus linger longer taking in the beauty of the entire border. Having too many vertical groups too close to each other can cause confusion, and the emphasis you want to create will be lost.

color and texture

Providing color in the landscape is probably one of the main reasons we plant a flower border. Therefore we should give considerable thought to the colors of the flowers we choose and the way we combine them. Color is a personal thing; we

continued

PLANNING THE PERENNIAL BORDER

continued

each have our likes and dislikes. I usually prefer the more subtle, soft shades with dominant accents. You may prefer bolder colors and combinations. Whichever you choose, the following guidelines may be helpful.

I generally prefer using one color to a group, avoiding mixtures. Unfortunately, it is sometimes difficult to obtain seeds or plants in separate colors. Such is the case with lupines, columbines and foxgloves. But you can get separate color cultivars in pansies, tulips, sweet williams, and some others.

Keep a color scheme in mind. My general rule is to choose between featuring the reds or the orange, golden and bronze colors. If choosing shades of red, I'll combine them with soft salmon-pink, blue, lavender, white, cream, soft yellow or gray (foliage), omitting orange, golden yellow, rose-pink and rich bronze. If I want oranges, I'll choose from all the yellows, bronzes, blues, lavenders, purples, whites and creams, omitting the bright reds. Color schemes can vary with the seasons. Early in the year bright red tulips could dominate, and with them select compatible colors in the other spring blooming plants, omitting any orange and golden yellow that will be blooming at the same time. By midsummer purple sage *(Salvia* x *superba)* and the soft yellow yarrow *Achillea* 'Moonshine' could provide the featured colors, not having any reds in bloom at that time.

Too many bright colors compete for the viewer's attention. For each season select one or two full-strength colors and combine them with tints and shades of the other colors to be used.

In choosing what colors to place where on the plan, consider the neighboring plants that will be in bloom at the same time. Select colors that will contrast with each other creating small local color harmonies. For example, put blue *Phlox divaricata* instead of pink bleeding heart next to pink tulips; pink columbine instead of blue flax next to blue German iris or blue veronica instead of yellow oenothera next to yellow yarrow. Refer to "Sequence of Bloom" chart or your own blooming calendar to find out what will be in bloom during the same periods. The more thought you give to color the more pleasing your garden will be.

Texture is another element that can provide contrasts: fine texture with bold textures, smooth with coarse. Even leaves of plants can provide nice textural contrasts

DEVELOPMENT OF A PERENNIAL BORDER PLAN

Border – 23 ft. x 8 ft.

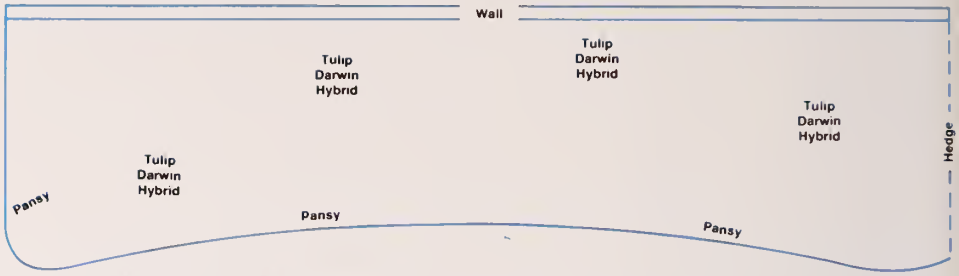


Fig. 1. Late April and early May-blooming plants spotted throughout the border.

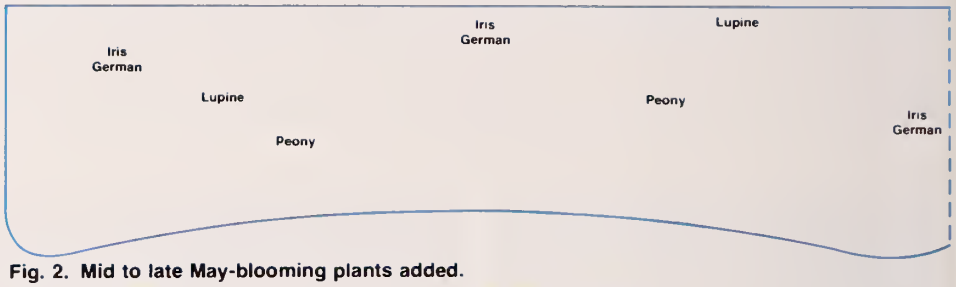


Fig. 2. Mid to late May-blooming plants added.



Fig. 3. June-blooming plants added.

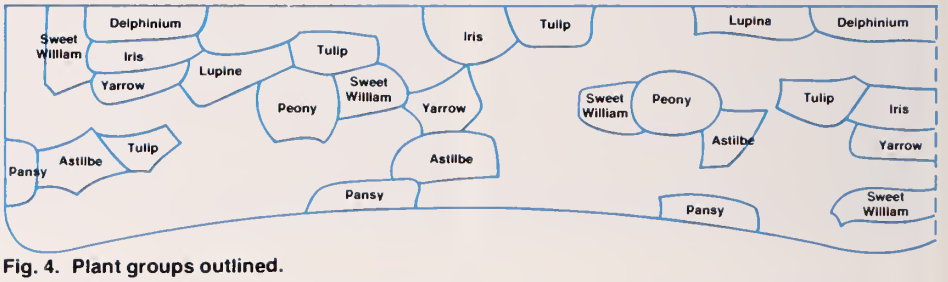


Fig. 4. Plant groups outlined.

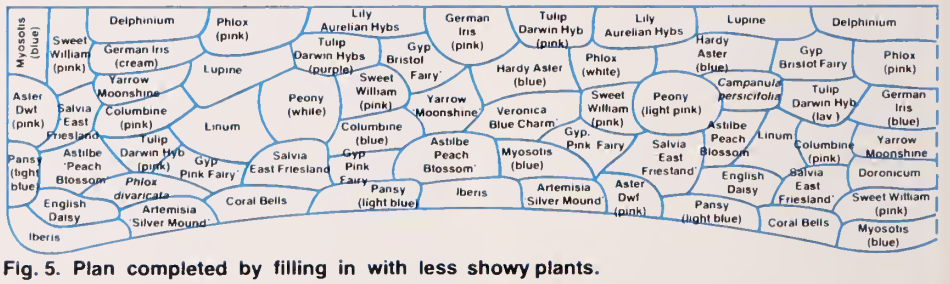


Fig. 5. Plan completed by filling in with less showy plants.

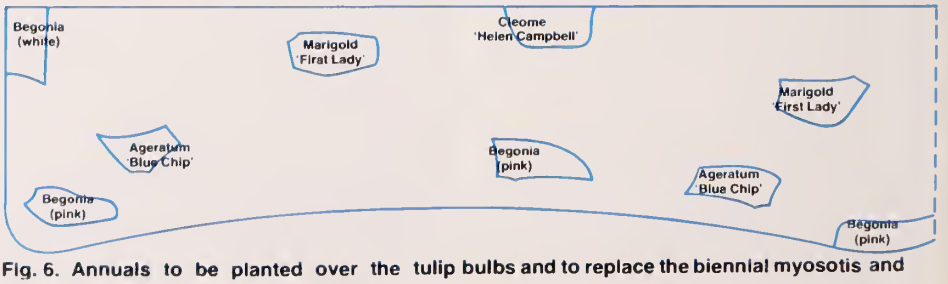


Fig. 6. Annuals to be planted over the tulip bulbs and to replace the biennial myosotis and English daisies for late summer and fall color.

to enliven a shady section of the border that might otherwise be dull.

rhythm and balance

Now let's turn to our complete plan and note some of the considerations that went into its development. The shape of a number of the drifts follows the overall shape of the border. In a long border make them longer than wide. Where curves are present have some follow the curve. This promotes rhythm – related movement that carries the eye through the border. This is especially important along the front edge. Here the drifts are only wide enough for a single or staggered row of plants and are long enough to carry the eye along. This front edge provides the "frame" for our "picture." The plants used here should be compact and have good, dense foliage when they are out of bloom to make a neat edging.

Rhythm is also provided by repetition of the same kind of plant (the four tulip drifts, all different colors) or the same plant in the same color (the sweet williams, yarrow, salvia, etc.). This repetition insures unity – all sections of the border belonging to one whole.

In fact, I believe repetition of groups is probably one of the key factors in making a satisfactory plan. It aids in carrying out all of the principles of design. As you are adding one kind of plant to the plan, spot a few more drifts throughout the border at the same time. Too much repetition, however, will limit the number of kinds of plants for which you will find space. Too little repetition, on the other hand, produces an unrelated collection of plants instead of a pleasing design. You have to hit a happy medium.

Balance is another principle to consider when placing plants. Note how the group of delphiniums at the right corner is balanced by one near the left corner. The same for the lilies and the lupines. They are among the showy plants and if one of the drifts is missing the border might look a little lopsided when in bloom. If you provide repetition, balance usually takes care of itself and need not be a major concern.

Dominance was mentioned when outlining the mechanics for making the plan. Emphasizing a few plants each season creates a theme, removing competition. Select the dominant plants for some outstanding feature, such as color, plant habit or flower form, and let these dominate while they are in bloom. Don't overdo it. One plant should not overpower the rest of the plants so they are not noticed. Every plant has its part to play in the overall design. Some have a more important role than others, but without the support of its subordinates some of its importance would be lost. Every plant should have its reason for being included.

Your garden should express you and should be in harmony with its surroundings. No two situations are alike. Coming up with a plan that you have made yourself, for your particular border and of the flowers you especially like can be most satisfying.

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SEQUENCE OF BLOOM – Partial List of Perennials

Blooming seasons are approximate. This will vary with the season, location and cultivars. Some will continue to provide occasional bloom through the rest of the year.

Approx. ht. in feet	Name of Plant	Apr.	May	June	July	Aug.	Sept.
		"X" divides the month into thirds					
1	Narcissus (daffodil)	XX					
½	Bellis (English daisy)	XX	XXX	XX			
½	Pansies & violas	XX	XXX	XXX			
1-1½	Tulips, species & early flowering	XXX					
2-3	Tulips, Darwin hybrids	X	X				
2-3	Tulips, Cottage, Darwin, etc.		XX				
1	*Brunnera macrophylla*	X	XXX				
1½-2	Doronicum (leopard's bane)	X	XXX				
1	*Iris pumila*, dwarf	X	X				
¾	Myosotis (forget-me-not)	X	XXX				
½	Primula (polyanthus)	X	XXX				
1	Aurinia (perennial alyssum)	X	XX				
2½	Dicentra (bleeding heart)	X	XXX				
1-1½	*Dicentra eximia* (fringed bleeding heart)		XXX	XXX	XXX		
¾	Iberis (perennial candytuft)		XX				
¾	*Phlox divaricata* (blue phlox)		XX				
1½-3	Aquilegia (columbine)		XX	XXX			
3	Iris, German		XX				
1½	Linum (blue flax)		XX	XXX	XXX		
2-3	Iris, Siberian		X	X			
3	Lupinus (lupine)		X	XXX			
1	*Nepeta x faassenii* (catnip)		X	XXX	XX		
3	Peony		X	XX			
1½-2	*Chrys. x superbum* (shasta daisy)			XXX			
3	*Papaver orientale* (oriental poppy)			XX			
1½	*Heuchera sanguinea* (coral bells)			XXX	XXX	XXX	
3-4	Digitalis (foxglove)			XXX			
2½-3	*Campanula medium* (canterbury bells)			XXX			
1½	*Dianthus barbatus* (sweet william)			XXX			
1	*Dianthus plumarius*, etc.			XXX			
2½	*Campanula persicifolia* (peachleaf bellflower, peach bells)			XXX	X		
1½	*Veronica spicata*			XXX			
1½	*Salvia x superba* (violet sage)			XX	XXX	XX	
1½	Oenothera (evening primrose)			XX	XXX		
1½-3	Achillea (yarrow)			XX	XX		
2½-5	Delphinium			XX	XX	X	XX
1½-3	Gypsophila (perennial babysbreath)			XX	XXX	XXX	XX
1-2	Coreopsis			X	XXX	XX	
1-2	Gaillardia (blanket flower)			X	XXX	XXX	
1½-2½	Astilbe			X	XX		
3	*Phlox paniculata* (perennial phlox)				XXX	XXX	XX
2½-3½	Kniphofia (red-hot-poker)				XXX	X	
3-6	Alcea (hollyhock)				XXX		
1-1½	*Sedum spectabile*					XX	XX
2-4	*Anemone japonica*					X	XXX
1-4	Hardy aster (michaelmas daisy)					X	XXX
1½	Eupatorium (hardy ageratum)						XXX

Viola K. Anders was Assistant Professor of Floriculture in the Department of Horticulture and Landscape Design at Temple University Ambler Campus until 1979 when she retired after serving for 25 years. She was awarded the Teaching Citation by the American Horticultural Society at its Annual Meeting held in Philadelphia last September. She was also the recipient of PHS's Certificate of Merit in 1976.

Philadelphia's "Golden Age" of Gardens

by Elizabeth P. McLean

The lesson I have thoroughly learnt, and wish to pass on to others, is to know the enduring happiness that the love of a garden gives. . . For the love of gardening is a seed that once sown never dies, but always grows and grows to an enduring and ever-increasing source of happiness.

Gertrude Jekyll, *Wood and Garden*
(Longmans, Green & Co., London, *c.*1899)

We can learn much from those whose trowels have dug the soil before us. Looking at pictures of long-ago gardens and reading old gardening books is not just an exercise in nostalgia for a dreary winter day. Past garden experiences can help us today; pictures can sharpen the eye for an appreciation of the whole, at a distance only time can provide. The PHS library has a set of hand-tinted glass slides from Philadelphia's "golden age" of gardens in the early 20th century. They were gifts from the Garden Club of America and from the late Emily Cheston. While some reflect a scale and level of maintenance rarely seen in a private garden today, others are more intimate. All reflect a love of gardens.

These Philadelphia gardens, ranging in style from formal to informal, illustrate several horticultural themes that are still important. The first is a sense of plan and relationship to the house; no matter how informal the planting, the design had an architectural base. The second was the significant use of perennials: the backbone of the garden. We "practical" gardeners of the 1980's tend to take perennials somewhat for granted; they are "labor-saving" and less expensive in the long run than annuals. A short 100 years ago, our Victorian ancestors did not see gardens that way; they loved brightly colored annuals "bedded" out in formal designs. It was a determined Irish gardener and a dumpy English lady with failing eyesight who changed this, and their influence crossed the Atlantic; it was reflected in the gardens of Philadelphia's "golden age" and even now in many of our own gardens, large and small.

Legend has it that Robinson turned out all the fires in the greenhouse on a cold night, and then left County Kerry, walking to Dublin.



Lupines and iris in the border at "Munstead Woods," Gertrude Jekyll's Garden. (From *Some English Gardens* by L. Elgood and G. Jekyll, Longman's, Green & Co., London, 1904.)

William Robinson was the Irishman, who early in his career had been in charge of a great garden in County Kerry, which included extensive greenhouses. Legend has it that Robinson turned out all the fires in the greenhouse on a cold night, and then left County Kerry, walking to Dublin. Whatever the truth, he thereafter had a dislike of tender "hothouse" plants; their use he described as "bad carpets done in reluctant flowers." In a subsequently successful career, Robinson wrote and advised on the creation and maintenance of "natural" gardens of hardy plants, particularly native ones.

Gertrude Jekyll was an artist, for whom gardening was a side interest, albeit a successful one, until her sight began to fail, and she could no longer paint. She was influenced by Robinson, but developed his ideas further, with her superb color sense and intimate knowledge of both flowers and foliage. Jekyll (rhymes with "treacle") designed over 300 gardens before her death, and her own garden at Munstead Wood was probably the most influential garden in England in the first decades of the 20th century.

Both Robinson and Jekyll wrote well and prolifically, spreading their influence; their books were popular in America. In books such as *Wood and Garden, Gardens for Small Country Houses* (C. Scribner's Sons, N.Y., 1920), and *Colour in the Flower Garden* (Country Life, London, 1908), Jekyll in particular revolutionized the stiff garden style that had prevailed. What was especially important, is that her ideas were applicable on any scale; in fact, she once designed, with great thought, a window-box rock garden for a young factory worker. Jekyll wrote about plant combinations that "married" well, that set off each other,

The Slides

The softly colored photographs of Philadelphia gardens for this article are from a collection of hand-tinted glass slides in the Pennsylvania Horticultural Society Library. The gardens they illustrate no longer exist in the form shown.

continued on page 19



An attractive "marriage" can be seen in the photograph of Mr. and Mrs. Arthur Hoyt Scott's garden, "Todmorden Farm." There red tulips rise in a bed of forget-me-nots; each intensifies the color of the other, and the forget-me-nots soften and hide the stiff tulip stems. This same combination can now be seen at Monet's restored garden at Giverny in France, not far from Paris. (The forget-me-nots would be the annual spring flowering Myosotis sylvatica, *rather than the perennial* M. scorpioides, *which has naturalized here along some streams.) The Scotts were great gardeners and Mrs. Scott's fine collection of tree peonies can still be seen at Swarthmore College, whose arboretum was named after Arthur Hoyt Scott.*



"Edge Hill," the garden of Mrs. Samuel Morris, is a period-piece, with a timeless quality. The use of box edging was popular, and the yew hedge in the background illustrates the effectiveness of "setting off" perennials against evergreens, which Jekyll also advocated. The statue in the niche is a charming focal point, an architectural element in the garden design, while the planting itself is soft in feeling; the box is allowed to billow. Several "mainstays" of the spring perennial border appear: phlox, iris and peonies. Are those spires in the back foxglove? Certainly Gertrude Jekyll would have approved of the contrast and blend of iris foliage, digitalis spires, and peony massed against phlox.



The "natural garden" espoused by Jekyll and Robinson also became a popular feature of early 20th century Philadelphia gardens. The pink of the tulips in Mrs. Richard Haughton's rock-garden, above Great Valley, is echoed in the waterfall of moss-pink, Phlox subulata, *an American native, which spills down the rock. At "Lands End," Mrs. Rudolph Rauch created a wild-garden with wildflowers, ferns and bog-plants by a brook, turning an area formerly used as a trash-heap into a beautiful, "natural" setting.*



The use of water in pools, which were never meant for swimming, was a recurrent theme of the period. The shape of the pool in Mrs. Caspar Hacker's Bryn Mawr garden reappears again and again in the 1920's; today one can be seen behind Gates Hall, originally the home of Mr. and Mrs. Thayer, now the administrative building of Morris Arboretum. Mrs. Hacker's garden is formal in plan; pool, wall and evergreen background supply the architectural base; yet, what would this garden be without the color of the perennial border?



When I think of an "English border" I think of a mass effect, and a profusion of color, certainly the effect of Mrs. William Breck's Rosemont border, backed by an equal profusion of shrubs, probably including Weigela *and bridal-wreath,* Spiraea prunifolia. *The oriental poppy,* Papaver orientale, *makes a surprising splash of color; perhaps artistic license was used when tinting the glass slides. There is an interesting study in foliage, from the linear effect of the daylily leaves in the foreground, against the sculpted leaves of the peony, the softness of the columbine, and in the background, the spiky triangles of iris foliage, all of interest whether or not the plants are in bloom. The use of foliage for all-season interest is an important aspect of a perennial border, and one emphasized by Gertrude Jekyll*





Philadelphia's most direct connection with the Jekyll tradition was at "Harston," the Chestnut Hill garden of Mr. and Mrs. Frazer Harris. It was designed by Beatrix Farrand, better known for her work at Dumbarton Oaks in Washington, DC, and Eyrie Garden, on Mount Desert Island, Maine. Both are now open to the public. Beatrix Farrand described herself as a student of Gertrude Jekyll, although her formal training was in horticulture at the Arnold Arboretum. At "Harston," a grass terrace is enclosed by brick walls which are softened, above and below, with perennials and biennials. In the illustration one is conscious of the effective repetition of foxglove, a biennial of great popularity. A contemporary description indicates that tulips, iris and columbines were the dominant note during May, followed by delphiniums, lilies and meadow-rue or* Thalictrum, *in early summer; a most effective use of a few types of plants, repeated for heightened effect. Beyond, a double border stretches down a terraced walk, seemingly as far as the eye can see, in actuality terminated by a 200-year-old cherry tree. The effect of the illustration is romantic, although it is difficult to identify the actual perennials used;* Trollius, *or globeflower is probably on the right. What one can see is the lovely effect of drifts, rather than blocks, of color as advocated by Gertrude Jekyll.*

**Twenty-five lucky PHS members have been scheduled to visit this superb garden, known as Rockefeller Garden, this summer on a trip led by Peggy Bowditch.*

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by contrast and blend, in color and in texture.

The gardens illustrated in the slide collection may be part of a "golden age" of gardening, which is well past, but Philadelphia's garden importance is not past. There are still great gardeners, some represented elsewhere in this issue, who work hard with their perennial gardens, large and small, with rewarding results. Many of these great private gardens are open to PHS members' tours. Philadelphia, too, has more gardens open to the public than any other city in the country. We have a chance to learn from all these, as well as the gardens of the past, so that our own garden may "please the eye, and give ease to the mind."

●

Elizabeth P. McLean is a garden historian and lecturer. She has an M.A. in American History from the University of Pennsylvania, and is an alumna of the Arboretum School of the Barnes Foundation. She is a Research Associate in Botany at the Academy of Natural Sciences and did most of the research for the first major American exhibit at the Chelsea Flower Show in 1982. She serves on the PHS Library Committee.

The Mechanics of Preparing the Perennial or Mixed Border

by L. Wilbur Zimmerman

During January and February of 1943, I was confined to the Philadelphia Naval Hospital for six weeks for an illness that earned me a medical discharge. After the first week I was feeling well enough, but was bored with just sleeping, eating and reading. I needed a project.

Since my wife and I had been talking about planting a border next to the large L-shaped flagstone terrace in back of our house, I felt planning that was the right project. My wife arrived at the hospital with four books from our library, and for several weeks I amused myself with making lists, cross lists and diagrams of where plants should be put. By the time I was released it was all organized, and after my wife made some corrections, we sent off an order for 190 plants to Wayside Gardens.

In due time the plants arrived and that first summer's results were not bad even by our later, more sophisticated standards.

We now understand all the factors that we had not taken into account at the time that made these results possible. First, we had conditioned the soil with quantities of peat moss and dried cow manure. The ground was naturally well drained, and a plain flat board rail fence, backed up by a well developed forsythia bed, topped a bank that fell away sharply about 15 feet into the woods. The trees afforded a fine green backdrop.

I mention this to point up the natural assets that were lacking in two later borders. We had to then provide what was not there naturally.

location, location, location

Orient your border to the south, southeast or southwest and plan it so it can be viewed at not too great a distance from the terrace or porch. Provide, if not present, a background for example, a not too solid fence, a hedge or open spaced brick wall.

A solid walk or fence restricts air circulation and exacerbates problems with fungus. If a hedge is the option, allow enough space behind the planting to permit access to the hedge.

If you are starting from scratch one good choice for a background would be a variety of columnar yew.

the soil bed

The next consideration is the soil bed itself which should have good drainage. This can be done in some cases by raising the bed 4 to 6 in.; edge the bed with flagstone. If the drainage is not satisfactory, lay soil pipe at various intervals depending upon the amount of correction needed. Another alternative is to lay a 6-in. bed of walnut-sized crushed stone. Cover with several inches of sand, and top with a foot



photos by L. Wilbur Zimmerman

Allium giganteum

or more of well composted soil.

Of course, if existing drainage is good, none of those measures are needed. Once your drainage is assured, the next step is to strip the sod and make a special compost pile of it or use it someplace else that needs sodding. Then double ditch (see illustration) the bed from end to end and incorporate plenty of material to lighten the soil, adding a layer at least 4 in. thick. If the soil is poor, 6 in. would be better. This addition can be made up as follows:

- 2 bushels peat moss
- 2 bushels completely rotted wood chips or compost
- 1 bushel half and half, perlite and vermiculite
- 1 60-lb. bag of lime
- 1 60-lb. bag of gypsum

Mix well. Gypsum lightens heavy soil. It does not change the soil's chemical composition. We mix it with fertilizer when we broadcast it.

Fork the well mixed ingredients into the soil blending thoroughly to a homogeneous depth of 8 to 10 in.

The best time to do this is in the fall so the soil can settle over the winter. If it is done in the spring, you should soak it with the hose every few days if it doesn't rain, over a period of several weeks.

If you've prepared the bed in the fall, apply fertilizer and lime in late November or early December. Rake it in thoroughly and the rain and snow melt will take it down deeper into the soil.

If the preparation is done in the spring, rake in the lime and fertilizer, and soak well, as mentioned before, if it does not rain every few days.

After lightening the soil with the additives, the original character of the soil will have been modified to such an extent that soil sampling to test for fertilizer needs will be useless. For the first year at least, depend on a general fertilizer, i.e., 5-10-5 plus 2% magnesium at the rate of three trowels full for every square yard of surface. After having done all of this, protect the roots of the new plants by placing them in holes lined with ½ in. of peat moss. This will prevent the fertilizer from burning the roots.

The reason for recommending the 5-10-5 plus magnesium formula is that the 10



Cold frames for perennials

parts of phosphorous will promote root growth and flower production. Fertilizers higher in nitrogen, the first number in the formula, stimulate a greater vegetative rather than flowering overgrowth. It is true that some plants might benefit from a variation but it is good for overall application for a mixture of plants not needing an acidic compost. Bulbs benefit from extra phosphorous in the form of slow release bone meal. Repeat surface fertilizing in about six

weeks, but reduce quantity by half, then repeat again in another six weeks. More frequent heavy rains may leach fertilizers faster in which case the time between applications of fertilizing might be shortened.

You have decided at the earliest part of this operation what the shape of the border shall be, a straight line, convex curve or retruded arc, an undulating curve or even a dentate line. The shape is dictated at times by the existing architectural elements in the garden. (See Viola Anders' article on p. 12.)

Also remember the border is not a cutting bed, that should be placed elsewhere.

The real fun starts when you decide what plants to include in the border. Others writing in this issue are making suggestions about this.

A few generalities are to be considered here, however, before actually writing out your catalog order or lists for the local nurserymen. It is the time to decide whether you will be liberal-minded as to what to include in your border or if you will be a purist and allow nothing but perennials. If you are not limited by the latter position, it opens up the possibilities of certain shrubs, bulbs, biennials and even a few annuals. White pansies in bloom planted before April first have been successful for us for over 30 years, and the white single petunias that follow usually hold out until after Labor Day. In these matters, however, your own likes and dislikes are paramount; it is your garden.

Some other salient points. Don't be discouraged if a portion of your border is somewhat marshy or shaded. Some plants will thrive in those areas, and they can provide a special interest otherwise not considered.

beware of "low maintenance"

Beware of the words "low maintenance." Your expectations may frustrate you or you may be in for some surprises if you ignore the concept entirely.

You can reduce maintenance by avoiding short-lived plants, or those that need dividing every year. Plants that spread too rapidly invade the territory that you want for other plants.

Some plants are more subject to disease than others. Still others require much staking and tying. Some plants are very beautiful, die down after flowering, and leave an unsightly spot in the border. Others simply will not thrive in the conditions you provide, and they may even die. But there is such a huge selection that there is no need to stick with unsatisfactory performers. Of course, avoid plants not listed as hardy in our zone.



Lilies and astilbe in the border.

Despite the existence of some of these problems, if you dearly love a plant, use it. You may become skillful enough to make it do better than its reputation promises.

Check your catalogs, and books with lists, to get a consensus on blooming period, ultimate height, habit, color of bloom and hardiness. Try to discover the best cultivars of the plants you decide upon.

Many people will say to avoid hybrid delphiniums in our area. But in the prolonged, cool, wet spring they may do splendidly – and what a show they can put on. Chrysanthemums can be grown in a corner of the vegetable garden and moved into the border around Labor Day; then they have not occupied a space in the border without bloom all summer. Phlox are notorious for the unsightly fungus they develop on the leaves and stems. But large doses of a systemic fungicide supplied at two- or three-week intervals and worked into the soil can overcome this. It just depends upon how much you like these and other more recalcitrant plants. One observation about design – it is harder to work a deep border, but you can have a greater success with succession of bloom and a more striking border if at least parts of it are 10 to 15 ft. in depth. The scale of your adjacent features and space will, of course, determine how far you can go in this respect.

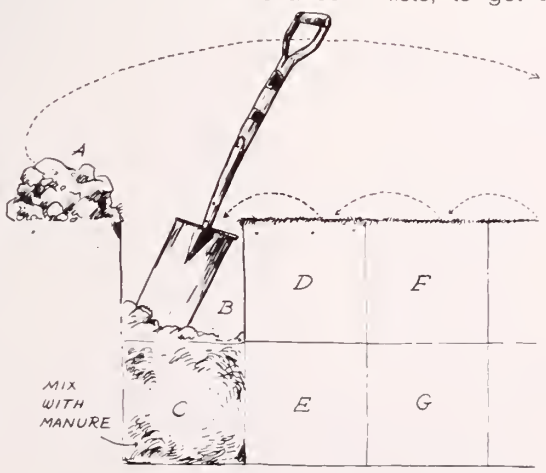
diseases

Diseases and insects in themselves deserve a whole large chapter. I like Cynthia Wescott's books and have used one of them for over 35 years.* There are other books that you might like as well or better.

For non-edible plants I use a systemic fungicide (Benomyl) and insecticides in powder (Benomyl) and granular forms (Noculate), worked into the soil around plants and watered in. One advantage is that they are effective for a month to six weeks, depending upon the leaching by

continued

The Gardener's Bug Book by Cynthia Wescott, Doubleday The 3rd and 4th editions, 1964 and 1973, are available through PHS Library



Reprinted with permission from *The Rockwells' Complete Guide to Successful Gardening* by F. F. Rockwell and Esther C. Grayson, published by Doubleday & Company, Inc., NY, 1965.

Double Ditching the Perennial Bed

A – Soil is removed from area B, making an open trench.
C – Subsoil in area C is forked over and mixed with manure or peatmoss and compost.
D – Topsoil from this area is forked over, mixed with compost and fertilizer, and placed in trench C.
E – This area is forked over and treated as area C.
F – Is treated as area D, the enriched soil being placed in area D. This operation is repeated over the entire area to be dug.
A – Topsoil A is enriched and carried across at the end of the digging operation to fill in the remaining open trench at the far side of the garden.



Platycodon grandiflorus mariesii

frequent rains. There is no material to be washed off the plant when it rains.

Watering, of course, must be done at times. Newly planted things need more careful watching until established. Even in the established border if there have been six to ten days of sun with no rain during the growing season, check the soil by poking with your finger to full depth to determine dryness. Usually it will need a thorough watering, at least the equivalent of ½ in. of rainfall.

If all this seems like a formidable enterprise, it is because that is what a perennial border is, if it is to be done successfully. It is worth it.

TROUBLE SHOOTER'S CHECKLIST

If you are not as successful as someone who has related their good experiences with a plant, check the micro-climates. A localized area can be so affected by poor water drainage, by trees as wind shields and by nearby structures. Sunshine and the ground slope as it affects air drainage also should be carefully noted

The health of plants, their condition on arrival as well as the promptness with which they are planted, will have a large bearing on successfully establishing a border.

●

L. Wilbur Zimmerman served as chair of the PHS Council from 1976-80 and Flower Show chair in 1974 and '75. He is emeritus judge for the American Orchid Society and serves on the PHS Publications Committee. He gardens in Villanova.

SHRUBS USED WITH PERENNIAL BORDERS

Where a border is deep as well as long, we have placed numerous shrubs in the background These must be pruned several times during the season to keep them from expanding at the expense of the perennial herbaceous plants.

Following is a list of shrubs used in the 165-ft. border:

Abeliophyllum distichum
Caryopteris 'Heavenly Blue'
Chaenomeles japonica 'Cameo'
Chimonanthus praecox
6 Current Red Lake
3 Gooseberry Pickwell
3 Exbury Hybrid Azaleas
Forsythia x *intermedia* 'Lynwood Gold'
Fothergilla major
Hybiscus syriacus 'Alba'
Hydrangea quercifolia
Kalmia latifolia
Kerria japonica
Philadelphus spp.
Pieris japonica
Pink azalea (unidentified)
Rhododendron calendulaceum
Rhododendron mucronulatum
Spiraea x *Bumalda* 'Anthony Waterer'
Spiraea x *Vanhouttei*
Syringa, Blue French Hybrids

LWZ

The Author Chooses Border Perennials

Plant	Time of Bloom	Height	Color	Best Way to Establish Plants* in a New Border (further propagation info in parentheses)	Comment
Aster x *frikartii* *A. harrington*	fall	36 in. to 40 in.	pink	use plants (spring division)	For back of border.
Anemone japonica	August to frost	36 in.	lavender, mauve	plants (spring division)	Delicate, loose arrangement of flowers, varies in blooming habit.
Achillea spp (yarrow)	June to July	30 in.	yellow	plants (spring division)	Holds itself well for 4 to 6 weeks.
Allium giganteum	June to July	4 ft. - 5 ft. stem globular 5-in. head	lavender, blue	bulbs, bulblets or seeds	Made up of many small florets; 5 in a clump gives great accent point. Ornamental only.
Anchusa myosotidiflora (forget-me-not)	May	24 in.	blue	plants (self seeds)	Loose, billowing and graceful; adds greatly to variety of form.
Asarum spp. (wild ginger)	May	5 in.	purple	plant divisions	Handsome, glossy leaves. Use as a spot of evergreen color in front of border.
Asclepias tuberosa (butterfly weed)	July to August	18 in.	bright orange	seed	A strong spot of color where needed.
Astilbe biternata (false goat's beard)	June, July	20 in.	white, pink, red	plants or divisions (divide after bloom)	Feathery inflorescence
Aquilegia spp (columbine)	April, May, June (depending on variety)	6 in. - 24 in.	many different colors	plants (self seeds)	Bell-shaped flowers with long spurs add a special distinction.
Campanula carpatica (bellflower)	June to October	8 in. to 10 in.	blue or white	plants (division early spring or fall)	Graceful form
Campanula glomerata	June to July	20 in.	tyrian purple	plants or division (spring division)	Reliable, striking plant.
Delphinium hybrids	June to September	4 ft. to 6 ft	blue, white, pink, lavender (plain or with eyes)	very fresh seed or plants	Spikes, heavy inflorescence, staking imperative. Demanding to grow; winter loss can be high. Despite all this, a good stand of 12-15 spikes is a tour de force when all works out well. A few of the finest flowers like delphinium require extra skill, attention and propitious weather. Benlate at crown and granular systemic insecticide – both monthly. Watch for first sign of mites, too. (See phlox below.)

Plant	Time of Bloom	Height	Color	Best Way to Establish Plants* in a New Border (further propagation info in parentheses)	Comment
Delphinium spp. (larkspur)	June to September	24 in.	blue	very fresh seed or plants	Flowers distributed further apart on stem than hybrids; hardier.
Dianthus barbatus (sweet william)	June to July	18 in.	various	seed for single color	Sow seed in a cold frame and select for color to transplant in border.
Dicentra eximia (wild bleeding heart)	May until frost (continuous)	18 in.	rose	plants (self seeds)	Foliage remains neat. A new hybrid has more vivid color.
Digitalis spp. (foxglove)	June to July	24 in. - 36 in.	various	plants (self seeds)	Treat as biennial. Beautiful color variations.
Fritillaria imperialis (crown imperial)	early spring before hybrid tulips	18 in. - 20 in.	red-orange	bulbs	Very showy and remarkable flower form, from bulbs.
Gypsophila paniculata (baby's breath)	June, July	30 in.	white	plants	Another loose feathery plant.
Heliopsis pitcherana (pitcher heliopsis)	July, August	36 in.	orange	plants (spring division)	Good for summer bloom, when other plants droop.
Heuchera sanguinea (coral bells)	June	15 in. - 24 in.	deep red	plants (divide in fall)	Loose panicle, small florets, lends variety to garden textures. Attracts hummingbirds.
Hosta plantaginea *H. sieboldiana* *H. japonica*	July, August	32 in. 32 in. 24 in.	white pale lilac dark violet	plants (divide in spring before leaves come out)	Beautiful foliage all summer. Flowering not too large, but of singular beauty in more shaded area of border.
Iberis sempervirens (evergreen candytuft)	May	6 in. - 10 in.	white	division	For front of border.
Lobelia cardinalis *L. siphilitica*	August to October	20 in. - 30 in.	deep cardinal deep blue	plants (self seeds, divide in early spring)	Prospers in moist soil.
Monarda didyma (bee balm)	July into August	30 in. - 36 in.	scarlet	plants (spring division)	Obtain deepest shade of scarlet available, attracts hummingbirds.
Muscari spp. (grape hyacinth)	very early spring	6 in.	deepest blue	bulbs (self seeds)	A few clumps give the early border a great lift.
Phlox divaricata	May	12 in.	pale lavender	plants or division (self seeds)	Handsome clumps of lavender flowers, no problems with mildew.
Phlox paniculata	July, August	24 in. - 36 in.	white, pink many hybrids	plants (cuttings or division)	Great show in July and August. Very prone to mildew. We have controlled it by working large amounts of Benlate into soil around roots on a monthly basis – ½ lb. at a time to each mature plant, starting when first shoots show through the ground.
Physostegia spp. (false dragonhead)	July and August	36 in. - 48 in.	whitish to purple red to pink	plants (division)	Spread and height depend on moisture; can spread rapidly. 'Alba,' however, is much less robust, is unusual and is highly recommended.
Platycodon grandiflorus (balloon flower)	May to October	24 in.	blue and white	plants (self seeds occasionally)	These two colors, most attractive.
Primula spp.	April to June	6 in. - 18 in.	various	plants and seeds	For front of border, gives great color in early spring. Moisture necessary for best success.
Rudbeckia laciniata (golden glow)	July to Sept.	4 ft. - 6 ft.	deep yellow	plants (self seeds)	For back of border.
Rudbeckia speciosa (showy coneflower)	July (though frost reliable)	30 in.	golden yellow with big black eyes - raised in cone shape.	plants (self seeds)	
Rudbeckia sanguinia (Also known as *Echinacea sanguinea*)	July (though frost reliable)	30 in.	lavender purple	plants (divide in spring)	
Solidago alpestris (goldenrod) and other species and English hybrids	August	12 in. - 18 in.	yellow	plants (divide in spring)	A good wild flower introduced in the border for a good effect.
Stokesia spp. (Stokes aster)	July and August	12 in. - 24 in.	lavender, white	plants (divide in spring)	A reliable mid-summer bloomer.

Where room permits, clumps of tulips and daffodils improve the spring border. Various daylilies (division) as well as a selection of other lilies (bulbs) lend a striking note to the border, although the constant moving and dividing of plants present a hazard to the lilies. For further suggestions, I recommend that you comb the perennial lists in *America's Garden Book*, James and Louise Bush-Brown, Scribner, New York, 1932. (Revised edition, 1980)

*The methods of establishing plantings listed here are those used by the author, who states: "While there are a few plants we prefer to grow from seed such as delphinium, primula, aquilegia, dianthus and asclepias, we would start a new border with plants, divisions or bulbs and thus develop a satisfactory border much more quickly. Later modifications, additions or replacements can be made from the gardener's own seedlings." For more information about propagating, see Jane Lennon's article on propagating on page 30.



photos by Peggy Bowditch

Campanula poscharskyana, rather rampant in the garden, behaves well when forced for March bloom.

YOU CAN FOOL MOTHER NATURE: FORCING PERENNIALS FOR INDOOR BLOOM

by Peggy Bowditch

If you long for a reminder of your summer flower garden in winter, try forcing perennials. Forcing is a method of hastening growth, usually bloom, out of season., You imitate what nature does but on your own timetable.

Which perennals are easiest to force? In general, the earlier a plant blooms outdoors, the easier and faster it can be forced. So pick April bloomers for ease and later bloomers as a challenge. A second consideration in choosing plants is their eventual size. If your indoor growing space is large, choose any perennial. But if you have limited space try small, low-growing plants. Suggested sites for forcing are greenhouses, sunny window sills, sun porches and under plant lights. For the last five years I've done all my forcing under lights in a cool basement.

To begin, look around your garden in spring. Which perennials look crowded or have outgrown their allotted space? When you divide them, instead of replanting all the divisions, pot up a few for forcing. Use good size divisions for forcing; there's no point in going through the process with a plant too small to bloom. The ideal time to divide and pot up forcing stock is in late spring or early summer. That gives the divisions a long summer to grow and produce strong top growth and roots. I try to keep a good mass of roots per division. Some garden soil clings to the roots, and I fill the remainder of the pot with house plant soil. Depending on the plant's needs, extra sand or organic matter may be added. Divisions made at this time of year may require some shading for a few days.

Once established, plants grow rapidly.



Cold frame where plants spend part of the winter.

Fertilize and water as needed. I grow all my plants in clay pots so that I can sink them into the garden bed. If watered during hot, dry spells they thrive with little care. A slow-release fertilizer mixed into the potting soil feeds them while I'm on vacation.

Another source of forcing material is the nursery or garden center. Generally their plants are already in containers so you just have to grow them on. Don't rush to repot your plants into larger containers. Most growers feel that pot-bound plants are apt to produce more abundant flowers.

And, if you have the time and inclination, you can be your own carbon dioxide generator. Just stand around your plants all day, exhaling in their direction. Such eccentric habits are overlooked only if your results are exceptional!

In fall plants need to undergo a cold period. In early November I cut back top growth on all but those that keep their foliage through the winter (evergreen foliage). As clay pots often shatter in winter I repot into plastic containers before sinking everything into a bed of peat and perlite in my cold frame. Soil trenches, window wells or unheated garages could also be used

continued



A Gale delphinium showing a well-developed root system important for forcing material.



Gale Nurseries exhibit in the 1982 Philadelphia Flower Show featured masses of delphinium and astilbe.

for the cold period. Check occasionally during warm spells to be sure that your plants haven't dried out. When the ground freezes in late fall, protect plants with a loose organic mulch. Salt hay is one of the best mulches for this. After 10 or 12 weeks the plants have had sufficient cold so that they are set for the next stage of forcing.

During a late January thaw I start bringing pots indoors. Cool temperatures with lots of light give the best results. Water and fertilize as required. Timing of flowering is difficult to figure exactly but usually the early bloomers flower in a month or less while the later ones take longer. Just as you think you're an expert you find you can't apply a formula and get identical results from year to year. Weather and growing conditions are never exactly the same. So forcing is a challenge, especially if you're growing for a specific date such as the opening day of the Philadelphia Flower Show.

I've long admired the magnificent displays featuring perennials in Gale Nurseries' exhibit at each Philadelphia Flower Show. In talking to Charlie and Chuck Gale I find there are many similarities in our forcing methods. They gather a great variety of material in spring and grow it through the season. Some are grown from seed. They raise delphinium from seed to spectacle with special care as it's one of the more difficult plants. It isn't even an easy plant to grow outside in Philadelphia gardens so it's a special treat to see it at the Show.

In late September the Gales' perennials are cut back and are exposed to a simulated winter in a 38° F. refrigerated truck. Fans keep air circulating to prevent disease. A pre-cold period fungicide treatment gives extra health insurance. After five weeks of cold, plants are brought into greenhouses or placed in cold frames. Early bloomers stay semi-dormant in very cold areas for a time while late bloomers enjoy relative warmth to move them along more quickly. By providing these varied conditions the Gales manage to have nearly all their perennials in bloom for the Show. Other refinements on home methods include adding lights and a carbon dioxide generator. They also have a heating system which warms the soil. Raising air temperature lessens quality but soil warmth speeds things along without detracting from appearance.

With a bit of imagination you can adapt some of these professional tips to home forcing. An unused refrigerator might be pressed into service to provide the cold period. But watch out for fungus diseases. Adding lights or running existing ones for longer periods is fairly easy. It is certainly simple to use tepid or warm water to increase soil temperature. A more long-lasting temperature increase could be managed by using a soil heating cable. And, if you have the time and inclination, you can be your own carbon dioxide generator. Just stand around your plants all day, exhaling in their direction. Such eccentric habits are overlooked only if your results are exceptional!

Once your perennials are in bloom you may prolong the flowering time by keeping the temperature down, especially at night. After they have finished blooming, keep them growing on with continued attention to watering and fertilizing. After danger of frost, gradually accustom plants to the outdoors and plant them in good garden soil. Forcing plants weakens them somewhat. With luck they'll recuperate and bloom in future years in the garden. While you're planting them why not look around for candidates for forcing next year?

Perennials Used for Forcing

Aurinia saxatilis (basket of gold)
Aquilegia spp. & hyb. (columbine)
Arabis spp. (rock cress)
Astilbe x *Arendsii*
Campanula spp. (bellflowers)
*Chrysanthemum maximum** (shasta daisy)
*Delphinium** hyb.
Dicentra spectabilis (lemon bleeding heart)
Doronicum spp. (leopard's bane)
Heuchera sanguinea (coral bells)
Iberis sempervirens (candytuft)
Iris pumila
Phlox subulata (moss-pink)
Primula spp. (primrose)

*more difficult because of later bloom time, size or other factor

Timetable for Forcing

spring to early summer
Divide perennials in your garden and pot up those you wish to force. Buy perennials to use as forcing stock.

summer to fall
Grow on material in containers. Water and feed as needed for strong growth.

late fall (early to mid-November)
Cut back top growth (except those with evergreen foliage) and place in cold environment, e.g., cold frame

winter (from late January on)
Bring in pots and grow as house plants in cool, sunny location. Bloom time will depend on plant's normal outdoor bloom time and cultural factors.

late spring
Replant forced material in garden.

●

Peggy Bowditch is a PHS Council member, teacher and lecturer as well as a perennial exhibitor (and exhibitor of perennials) at the Philadelphia Flower Show

A FLOWER ARRANGER'S DELIGHT

by Lucie B. Steele

My cutting bed doubles as a formal border. It is a 9 ft. x 70 ft. orderly olio of perennials, bulbs, corms and rhizomes. It is a flower arranger's delight.

Perfecting my garden, however, has been a rough row to hoe. For almost a decade I have tried via trial and error to find plants that would provide from late March until frost a succession of color. In addition, these plants must have tidy habits, tolerate torrid summers and frigid winters, produce pastel flowers that are soothing during the perennial August heat wave and thrive on minimal (two hours weekly) maintenance. Most important they must be showy and long-lasting in a vase.

With these criteria in mind I eliminated invasive beauties such as *Oenothera, Eupatorium* and *Tradescantia*. I axed *Lupinus, Delphinium* and *Aconitum* which can't take the heat. I weeded out *Heliopsis, Gaillardia* and *Geum* because their vibrant colors increased my own temperature when the mercury topped 90° outdoors.



photo by Lucie Steele

Dutch iris and Delaware Valley azaleas

Uprooted also were roses – too much spraying; *Coreopsis* and *Buddleia* – too much deadheading; *Papaver orientale, Alcea rosea, Cimicifuga* and *Veronica* – their necks nod after one day in water.

When this Armageddon ended, I set out to record the flowering times of the remaining plants so I would know from one year to the next which flowers would be available for my weekly arrangements. Because I often combine blossoms from the border with flowering woody branches found elsewhere on our Montgomery County property, the following compilation of my three-year diary lists for fellow flower arrangers the bloom time of both herbaceous and woody plants.

●

Lucie B. Steele designs perennial beds and flower arrangements in Haverford. A blue ribbon winner in the artistic classes at the Philadelphia Flower Show, recently she was commissioned to create dried arrangements for the U.S. Mint and the Philadelphia Museum of Art.

BLOOMING CALENDAR

Herbaceous Plants	Common Name	Color	Height	Woody Plants to accompany Perennials in Arrangements
		April 1-7		
Crocus spp.	crocus	white/yellow/purple/lavender	6 in	*Forsythia* spp.
Hyacinthus spp	hyacinth	blue/pink/lavender/yellow/white	10-12 in	*Lonicera fragrantissima*
Iberis sempervirens	candytuft	white	12 in.	*Magnolia stellata*
Narcissus spp	daffodil, narcissus	yellow/white	24 in	*Pieris japonica*
Scilla siberica	scilla	blue/white	8 in.	
		April 7-15		
Crocus spp	crocus	white/yellow/purple/lavender	6 in	*Forsythia* spp.
Hyacinthus spp	hyacinth	yellow/blue/pink/lavender/white	10-12 in.	*Lonicera fragrantissima*
Doronicum spp.	leopard's bane	yellow	18-20 in	*Magnolia stellata*
Iberis sempervirens	candytuft	white	12 in	*Mahonia aquifolium*
Mertensia virginica	Virginia bluebell	blue	12-20 in	*Pieris japonica*
Muscari botryoides	grape hyacinth	blue	10 in.	*Prunus* spp.
Narcissus spp	daffodil, narcissus	yellow/white	24 in	*Rhododendron mucronulatum*
Scilla siberica	blue squill	blue	6 in.	*Sassafras albidum*
Tulipa spp.	early tulips	various	18-24 in.	
		April 15-30		
Alyssum saxatile	goldentuft	yellow	12 in	*Chaenomeles speciosa*
Dicentra spectabilis	bleeding heart	pink/white	24 in.	*Cornus florida*
Doronicum spp.	leopard's bane	yellow	18 in	*Forsythia* spp.
Hyacinthus spp.	hyacinth	blue/pink/lavender/yellow/white	10-12 in	*Magnolia soulangiana*
Mertensia virginica	Virginia bluebell	blue	12-20 in	*Mahonia aquifolium*
Muscari botryoides	grape hyacinth	blue	10 in	*Malus* spp.
Narcissus spp.	daffodil, narcissus	yellow/white	24 in	*Prunus* spp.
Scilla siberica	blue squill (siberian)	blue	6 in	*Rhododendron* 'PJM'
Tulipa spp	early tulips	various	18-24 in.	*Syringa* spp.
				Viburnum spp
		May 1-15		
Alyssum saxatile	goldentuft	yellow	12 in.	*Cercis canadensis*
Dicentra spectabilis	bleeding heart	pink/white	24 in.	*Chaenomeles speciosa*
Doronicum spp	leopard's bane	yellow	18 in	*Cornus florida*
Mertensia virginica	Virginia bluebell	blue	12-20 in	*Halesia carolina*
Muscari botryoides	grape hyacinth	blue	10 in	*Kerria japonica*
Narcissus spp.	daffodil, narcissus	yellow/white	24 in.	*Malus* spp.
Tulipa spp.	tulip	various	18-24 in.	*Prunus* spp.
				Rhododendron (azaleas) spp.
				Syringa spp.
				Viburnum spp.
				Wisteria floribunda, W. sinensis

continued

BLOOMING CALENDAR

Herbaceous Plants	Common Name	Color	Height	Woody Plants to accompany Perennials in Arrangements
		May 15-22		
Aquilegia spp	columbine	various	24-30 in	*Cornus florida*
Centaurea montana	bachelor button, mountain bluet	blue	24 in	*Deutzia* spp
Convallaria majalis	lily-of-the-valley	white/pink	8 in	*Kerria japonica*
Dicentra spectabilis	bleeding heart	pink/white	24 in	*Rhododendron* spp
Scilla non-scripta	English bluebell, common blue	blue	18 in	*Spiraea x Vanhouttei*
Tulipa spp	tulip	various	13-24 in	*Syringa* spp
		May 22-30		
Aquilegia spp	columbine	various	24-30 in	*Cotoneaster* spp
Centaurea montana	bachelor button, mountain bluet	blue	36 in.	*Deutzia* spp
Dicentra spectabilis	bleeding heart	pink/white	24 in	*Kalmia latifolia*
Heuchera spp	coralbells	pink/white/red	18 in	*Kerria japonica*
Iris spp	iris – siberian, dutch, bearded	various	24-36 in	*Kolkwitzia amabilis*
Paeonia spp	peony	pink/white/red	36-48 in.	*Philadelphus* spp
				Weigela florida
		June 1-15		
Aquilegia spp.	columbine	various	24-30 in.	*Cornus kousa*
Baptisia australis	wild indigo	blue	36-48 in.	*Deutzia* spp
Centaurea montana	bachelor button, mountain bluet	blue	36 in.	*Kalmia latifolia*
Dicentra spectabilis	bleeding heart	pink/white	24 in.	*Lonicera heckrottii*
Digitalis purpurea	foxglove	white/pink/rose	36-48 in.	*Philadelphus* spp
Heuchera spp	coralbells	pink/white/red	18 in.	*Rhododendron* spp
Iris spp.	iris – siberian, dutch, bearded	various	24-36 in	*Styrax japonica*
Paeonia spp.	peony	pink/white/red	36-48 in	*Viburnum dentatum*
				Weigela florida
		June 15-22		
Achillea spp	yarrow	yellow/pink	12-36 in.	*Cornus kousa*
Anthemis tinctoria	golden marguerite	yellow	24 in.	*Deutzia scabra*
Aquilegia spp.	columbine	various	24-30 in	*Kalmia latifolia*
Astilbe hybrids	spirea	pink/red/white/peach	15-30 in.	*Lonicera heckrottii*
Campanula persicifolia	bellflower	blue/white	6-10 in.	
Centaurea montana	bachelor button, mountain bluet	blue	36 in	
Chrysanthemum parthenium	feverfew	white	15-30 in.	
Digitalis purpurea	foxglove	white/pink/rose	36-48 in.	
Heuchera spp	coralbells	pink/white/red	18 in.	
Lilium spp	lily, madonna or tiger	white/orange/pink/yellow	48-72 in.	
Paeonia spp.	peony	pink/red/white	36-48 in.	
Stokesia laevis	cornflower aster	blue/white	15 in.	
Thermopsis caroliniana	thermopsis	yellow	48 in.	
		June 22-30		
Achillea spp	yarrow	yellow/pink	12-36 in.	*Cornus kousa*
Althaea officinalis	mallow	pink	48 in.	*Lonicera heckrottii*
Anthemis tinctoria	golden marguerite	yellow	24 in.	*Rhododendron maximum*
Astilbe hybrids	garden spirea	pink/red/white/peach	15-30 in.	
Campanula persicifolia	bellflower	blue/white	6-10 in.	
Centaurea montana	bachelor button, mountain bluet	blue	36 in.	
Chrysanthemum parthenium	feverfew	white	15-30 in.	
Digitalis purpurea	foxglove	white/pink/rose	36-48 in.	
Hemerocallis spp	daylilies	yellow/orange/red	24-40 in.	
Heuchera spp	coralbells	pink/white/red	18 in.	
Lilium spp	lily, madonna or tiger	white/orange/pink/yellow	48-72 in.	
Scabiosa caucasica	pincushion flower	blue/white	24 in.	
Stokesia laevis	cornflower aster	blue/white	15 in.	
Thermopsis caroliniana	thermopsis	yellow	48 in.	
		July 1-7		
Achillea spp	yarrow	yellow/pink	12-36 in.	
Althaea officinalis	mallow	pink	48 in	
Anthemis tinctoria	golden marguerite	yellow	24 in.	
Astilbe hybrids	astilbe	pink/red/white/peach	15-30 in.	
Campanula persicifolia	bellflower	white/blue	6-10 in.	
Centaurea montana	bachelor button, mountain bluet	blue	30 in	
Chrysanthemum x superbum	shasta daisy	white	36-48 in	
Chrysanthemum parthenium	feverfew	white	15-30 in	
Filipendula rubra	queen of the prairie	pink	60 in.	
Hemerocallis spp	daylilies	yellow/orange/red	24-40 in	
Heuchera spp	coralbells	pink/white/red	18 in	
Hosta spp	plantain lily	blue/lavender/purple/white	24 in.	
Lilium spp	lily, madonna or tiger	white/orange/pink/yellow	48-72 in.	
Lythrum salicaria	loosestrife	purple/rose/red	15-48 in	
Platycodon grandiflorus	balloon flower	blue/white	12-24 in.	
Rudbeckia speciosa	black-eyed susan	yellow	24-36 in.	
Scabiosa caucasica	pincushion flower	purple/blue	24 in	
Stokesia laevis	stokes aster	blue/white	12 in	
		July 8-15		
Achillea spp	yarrow	yellow/pink	12-36 in	
Althaea officinalis	mallow	pink	48 in	
Anthemis tinctoria	golden marguerite	yellow	24 in	
Astilbe hybrids	astilbe	pink/red/white/peach	15-30 in	
Campanula persicifolia	bellflower	white/blue	6-10 in.	
Chrysanthemum x superbum	shasta daisy	white	36-48 in	
Chrysanthemum parthenium	feverfew	white	15-30 in	
Echinops exaltatus	globe thistle	blue	36-48 in	

BLOOMING CALENDAR

Herbaceous Plants	Common Name	Color	Height	Woody Plants to accompany Perennials in Arrangements
Filipendula rubra	queen of the prairie	pink	60 in.	
Hemerocallis spp.	daylilies	yellow/orange/red	24-40 in.	
Heuchera spp.	coralbells	pink/white/red	18 in.	
Hosta spp.	plantain lily	blue/lavender/purple/white	24 in.	
Lythrum salicaria	loosestrife	purple/rose/red	15-48 in.	
Monarda didyma	beebalm	pink/red	30-40 in.	
Phlox paniculata	phlox	white/pink/coral/red	36-48 in.	
Platycodon grandiflorus	balloon flower	blue/white	12-24 in.	
Rudbeckia speciosa	black-eyed susan	yellow	24-36 in.	
Scabiosa caucasica	pincushion flower	purple/blue	24 in.	
Stokesia laevis	stokes aster	lavender	12 in.	
		July 15-30		
Achillea spp.	yarrow	yellow/pink	12-36 in.	*Hydrangea macrophylla*
Althaea officinalis	mallow	pink	48 in.	
Anthemis tinctoria	golden marguerite	yellow	24 in.	
Campanula persicifolia	bellflower	white/blue	6-10 in.	
Chrysanthemum x superbum	shasta daisy	white	36-48 in.	
Chrysanthemum parthenium	feverfew	white	15-30 in.	
Echinops exaltatus	globe thistle	blue	36-48 in.	
Filipendula rubra	queen of the prairie	pink	60 in.	
Hosta spp.	plantain lily	blue/lavender/purple/white	24 in.	
Lythrum salicaria	loosestrife	purple/rose/red	15-48 in.	
Monarda didyma	beebalm	pink/red	24-36 in.	
Phlox paniculata	phlox	white/pink/coral/red	36-48 in.	
Platycodon grandiflorus	balloon flower	blue/white	12-24 in.	
Rudbeckia speciosa	black-eyed susan	yellow	24-36 in.	
Scabiosa caucasica	pincushion flower	purple/blue	24 in.	
		August 1-15		
Achillea spp.	yarrow	yellow/pink	12-36 in.	*Clethra alnifolia*
Althaea officinalis	mallow	pink	48 in.	*Hydrangea macrophylla*
Campanula persicifolia	bellflower	white/blue	6-10 in.	*Liriope spicata*
Chrysanthemum x superbum	shasta daisy	white	36-48 in.	
Chrysanthemum parthenium	feverfew	white	15-30 in.	
Lythrum salicaria	loosestrife	pink	48 in.	
Phlox paniculata	phlox	white/pink/coral/red	36-48 in.	
Platycodon grandiflorus	balloon flower	blue/white	12-24 in.	
Rudbeckia speciosa	black-eyed susan	yellow	24-36 in.	
		August 15-30		
Achillea millefolium	yarrow	pink	18 in.	*Hydrangea macrophylla*
Anemone hupehensis	Japanese anemone	white/rose/purple	15-20 in.	*Liriope spicata*
Begonia grandis	begonia	pink	12-24 in.	
Campanula persicifolia	bellflower	white/blue	6-10 in.	
Chrysanthemum parthenium	feverfew	white	15-30 in.	
Hosta plantaginea	plantain lily	white	24 in.	
Lythrum salicaria	loosestrife	purple/rose/red	48 in.	
Phlox paniculata	phlox	white/pink/coral/red	36-48 in.	
Physostegia virginiana	false dragonhead	white/pink	24 in.	
Platycodon grandiflorus	balloon flower	blue/white	12-24 in.	
Rudbeckia speciosa	black-eyed susan	yellow	24-36 in.	
Salvia spp.	perennial sage	blue	24-48 in.	
Solidago hybrids	goldenrod	yellow	12-36 in.	
		September 1-7		
Achillea millefolium	yarrow	pink	18 in.	
Anemone hupehensis	Japanese anemone	white/rose/purple	15-20 in.	
Begonia grandis	begonia	pink	12-24 in.	
Campanula persicifolia	bellflower	blue	6-10 in.	
Chrysanthemum x morifolium	garden chrysanthemum	various	12-36 in.	
Chrysanthemum parthenium	feverfew	white	15-30 in.	
Echinops exaltatus	globe thistle	blue	36-48 in.	
Hosta plantaginea	plantain lily	white	24 in.	
Phlox paniculata	phlox	white/pink/coral/red	36-48 in.	
Physostegia virginiana	false dragonhead	white/pink	24 in.	
Platycodon grandiflorus	balloon flower	blue/white	12-24 in.	
Rudbeckia speciosa	black-eyed susan	yellow	24-36 in.	
Salvia spp.	perennial sage	blue	24-48 in.	
Solidago hybrids	goldenrod	yellow	12-36 in.	
		September 8-23		
Anemone hupehensis	Japanese anemone	white/rose/purple	15-20 in.	
Aster novae-angliae	New England aster	purple/pink/white	36 in.	
Aster novi-belgii	New York aster	various	60 in.	
Begonia grandis	begonia	pink	12-24 in.	
Chrysanthemum x morifolium	garden chrysanthemum	various	12-36 in.	
Chrysanthemum parthenium	feverfew	white	15-30 in.	
Echinops exaltatus	globe thistle	blue	36-48 in.	
Physostegia virginiana	false dragonhead	pink/white	24 in.	
Rudbeckia speciosa	black-eyed susan	yellow	24-36 in.	
Salvia spp.	perennial sage	blue	24-48 in.	
		September 23-October 1		
Anemone hupehensis	Japanese anemone	white/rose/purple	15-20 in.	
Aster novae-angliae	New England aster	purple/pink/white	36 in.	
Aster novi-belgii	New York aster	various	60 in.	
Chrysanthemum x morifolium	garden chrysanthemum	various	12-36 in.	
Salvia spp.	perennial sage	blue	24-48 in.	

PROPAGATING

by Jane Lennon

The ancestors of garden perennials are the wild flowers or forbs* of the world's grasslands. With built-in survival systems they perpetuate themselves in nature with assistance from insects, animals and climatic conditions. Insects pollinate and birds distribute seed. Rodents chew at the roots and drag parts away, banks and hillsides slump in the spring thaws, breaking plant colonies apart. Animals and insects graze the plants seasonally. All of this breaking and chewing and dragging on the prairie perpetuates the plants growing wild there.

From time to time, in our flower border, we will have to provide a grand upheaval to keep our gardens alive and well. We may exclude the four-footed gardeners of the prairie from our flower borders, but we have to assume their duties to propagate and perpetuate the flowers.

The easiest way to get exactly the right plant in the first place is to go to a garden center or nursery and buy it. In the Delaware Valley we have a wealth of good plant sources, carrying hundreds of different perennials. The joy of a local source is that "what you see is what you get." Many garden centers continue to sell perennials through the summer, potting them in larger pots, enabling us to select a pink summer phlox, in July, in bloom. This is a wonderful service. I defy a catalog description to identify an exact shade or tone of color. Silver pink sounds lovely, but in bloom it may be a rather dirty gray pink.

From time to time, in our flower border, we will have to provide a grand upheaval to keep our gardens alive and well. We may exclude the four-footed gardeners of the prairie from our flower borders, but we have to assume their duties to propagate and perpetuate the flowers.

Plant your new healthy selections and watch them. By the following spring you will be able to tell quite a lot about the new plant. It may, unhappily, have disappeared entirely. It may resurface as a single stem, as it was the season before, or it may have become a cluster or vast mat of new shoots. It also may have a patch of seedlings all around the parent.

At this point, the beginning of the second season in the garden, most plants are best left alone. This will be their prime year in most cases. Now, last year's tiny little new plants will be the lush robust plants you hoped for when you purchased them.

when to divide

The end of the second season (September or October) or the start of the third season (May) is soon enough to consider division to make more plants for a larger

1.



Dig around the whole clump to loosen the entire root system.

2.



Gently shake and tease the soil out of the root ball. This is the moment to get to know the roots.

*forb: a broad-leaved flowering plant, as distinguished from the grasses, sedges, etc.

PERENNIALS

3.



photos by Patrick Radebaugh

Select divisions with several growth points and good root systems.

4.



Replant the divisions immediately, label them, and water them well.

landscape effect. Before digging apart clumps, make a clear decision about what you expect for effort. A puce iris will not please you in four new spots if it didn't thrill you in its crowded home. Also make sure you label the plants you want to propagate, while they are in bloom. It is infuriating to have to wait for them to bloom again to be sure, all the more infuriating to have them be the wrong color after you've dug and shaken and pried the things apart, carefully replanted them and waited for the new and stunning effects you've planned.

Also resist the temptation to spread a particular plant all over your garden just because it increases at a great rate. Enough evening primroses are enough.

We all recognize the flowers of lupines and shasta daisy, and many of us know the foliage of perennials, without the flowers showing. Only the dedicated diggers among us will score points on a quiz, identifying the roots of our garden lovelies.

Hidden in the carefully prepared soil of our borders and flower beds are the secrets to successful propagation of most garden perennials. Often we plant a potted plant, or one dug from nursery or garden, complete with a ball of earth. The root is hidden from us from the very first introduction we have to a plant.

Perennial roots are as varied as the tops. A Japanese anemone has a long black root, the thickness of a thumb, and up to 12 in. long, growing almost straight down into the soil. *Iris cristata,* a very different plant, has an equally different root. Looking a little like a hairy crab, this root grows almost on the surface of the ground, and horiztonal to it.

Roots, of course, like to be hidden and protected from light and from change in temperature and humidity. But this does not mean that we cannot expose the roots of a plant, occasionally. To successfully divide herbaceous perennials, you will need to look at the roots! An exposed root system tells the story of just how to proceed with the making of divisions. When most of the soil has been removed, the bud-root junctions are easy to see, select, and divide.

how to divide

Tools for dividing perennials include a digging fork or spade, a large piece of plastic or an old bed spread to work on, a watering can, a knife, sharp clippers and sometimes an ax. Also very important, a place to replant the divisions immediately. Dig around the clump or plant to be divided, loosening it in the border. Remember that the roots extend far beyond the little group of resting buds on the soil surface. When the clump is loose, gently shake the soil from it, then lift it out of the bed and onto the plastic or cloth spread on the lawn or path.

Once out of the garden you can shake or tease the remainder of the soil away from

continued

the root system. Start gently, until you begin to know what you are working with. Some roots are quite brittle, others are not. Also cut away any remainder of the previous season's tops. The plant is before you in a very naked form. You will be able to select parts of root with attached growth buds. Cut, pull or chop them from the parent clump, with one to three growth points and a section of root present on each division. Select divisions from the outer edges of the parent clump. These are the youngest and most vigorous parts of the plant. Discard hard, woody-looking centers of old clumps and their sometimes massive woody roots.

growing from seed

The second simple way to increase substantially the number of plants is to grow them from seed. Perennials generally take longer than annuals to grow to flowering size. From seed to flower is a period of four to five months for a delphinium and several years for a lily or hellebore.

Perennial seed is available from many seed companies and also through seed exchanges. The American Rock Garden Society Seed Exchange offers thousands of different seeds, collected by and distributed to its members. The American Horticultural Society also sponsors a seed exchange, with a much smaller list, but usually including a number of interesting or hard to find perennials.

Spring sowing with the help of a coldframe or cold porch or cold greenhouse is one of two possible time schedules. Sow and germinate the seed indoors in mid-March. Move the seed pans to cold shelter as soon as they germinate. Transplant seedlings into flats or rows in the coldframe as soon as they have two or three true leaves. Transplant them again when the plants are small and sturdy, perhaps early June, into nursery rows with 9 to 12 inch spacing. In September, transplant them again into the garden.

The alternate time schedule for seeding perennials is to sow in August, transplant seedlings in early September to overwinter in a coldframe, then move them to the garden or nursery space in the spring. A coldframe is essential.

The extra steps of transplanting seedlings to flats and from flats to nursery account for the higher cost of perennials at garden shops. The seedling perennials require space and protection during their slow growing infancy.

Some perennials will take quite a long time to germinate. If seedlings do not appear, keep the slow seed pans cool and moist and wait. What a thrill to have seedlings appear after a full year, which sometimes happens.

At each transplanting discard small, weak or unhealthy looking seedings. Plan to start with 50 seeds to produce 10 plants. Resist the temptation to try and grow all the seedlings to maturity. It is a waste of time and space. A flat of seed plants can require 2,000 sq. ft. of nursery space if you let it!

I prefer the American Rock Garden Society method for sowing seed. Fill the seed pans with a mixture of ½ compost and ½ coarse sand or bird cage grit. Sow the seed on the surface of the mix and label the pot. Then cover the seed with a ¼-in. layer of tiny stones. The covering of stones or fine gravel keeps the seed from getting splashed out or floating away when the pot is watered. It also keeps the soil moist and allows good air circulation.

Because there is such a variety of perennials it is difficult to give exact directions or time schedules for growing them from seed. A seed packet is still one of life's least expensive gambles.

increasing from cuttings

Some garden plants are clones or cultivars, which cannot be grown from seed. Some do not set seed; others do not reproduce "true" from seed. Most cultivars can be increased from cuttings.

Perennial cuttings are taken from healthy stems of mature growth, usually in late summer.

Before collecting the cutting material, prepare a propagating space. I use an open shady coldframe for this. The soil is a good light mix of garden loam and compost. I hoe out rows about 2 in. deep, then fill the little trenches with coarse sand, then flatten the surface and water the whole bed well. The prepared bed is level, firm and moist.

Write labels for all the cuttings you plan to take, then collect the material. The cuttings should be from 2 to 6 in. long, with three to five pairs of leaves. Terminal cuttings, or cuttings taken from the top of a stem are usually best. Remove flowers and flower buds, and the lower two sets of leaves from the stem. With a knife cut the stem off just below the lowest leaf scar or node on the cutting. Dip the cut end into a rooting hormone if you have some. It is helpful but not always necessary.

To plant or "strike" the cuttings in the prepared bed, use a board as a guide to cut a slot in the sand trench, then poke the cuttings down into it. About one-half of the cutting should be buried. The top half should have two or three healthy leaves. Space the cuttings several inches apart so that their leaves are not touching. This allows root room and helps prevent rot.

The cuttings must be moist and shaded while rooting. Sometimes they are covered with glass jars, coldframe sash or plastic to help retain moisture. Like rooting hormones, covers may be helpful but not absolutely necessary.

Cuttings may root in a few weeks or several months. New top growth indicates root growth and development. The cuttings that are not going to make it will have rotted or dried up or died within a month. Remove any that are clearly dead. Leave the remainder right where they are until spring. The gardener's curiosity is a big reason cuttings fail.

In spring the cuttings will have good root systems and developing tops. Move them out to the nursery space or directly to the garden.

Perennials in their huge variety are a joy and a challenge to gardeners. Their beauty, secret roots and quirky habits can provide endless entertainment, interest and pleasure. To grow a perennial is the way to know it.

There are no absolute rules for growing plants well. There are not many nevers or don'ts or musts. There is a lot of try and try again differently about perennials. And there is always the right plant for the right spot though it may take time to find it.

Books:

Many books on perennials include information about the best propagating methods for specific plants. I use *Gardening with Perennials Month by Month* by Joseph Hodak (N.Y. Times Book Co., N.Y., 1976), available through the PHS Library.

J.R.L.

For Information about Seed Exchanges
(You must be a member of the sponsoring organization.)

Mr. Norman Singer, Secretary
American Rock Garden Society
Norfolk Road
South Sandisfield, MA 02155

Mr. Steve Davis
Seed Program Coordinator
American Horticultural Society
P.O. Box 0105
Mt. Vernon, VA 22121

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After moving from an 18 ft. x 20 ft. city garden three years ago, Jane Reed Lennon began dividing and multiplying plants for a large, country garden and for a perennial nursery and cut flower business. Thousands of plants later, Cherrymont Farm Nursery officially opened in Morgantown this spring.



photo by Edmund B. Gilchrist, Jr.

Coreopsis verticillata

best & worst perennials

by Eugene W. Jackson

To me, perennials are like pets: they're beautiful and enjoyable, but also work. Like pets, my perennials must behave. They're here for *my* pleasure – I'm not here for theirs. No pampering, no slavish rituals for care, no staking, no spraying. Just a little fertilizer and appreciation now and then, plus minimal grooming. That's it.

This no-nonsense philosophy has evolved during my 25 years of enthusiastic – compulsive – gardening in Abington Township, north of Philadelphia. Early on, I specialized in perennials because they promised less work than annuals or bulbs.

What I didn't reckon with was the vast number of species available, each one tempting and potentially wonderful. And, alas, all catalogs and most books only *praise* plants they list; not until you've lived with a selection do you realize its flaws.

So seeking only perfect perennials, I've test-grown nearly every variety commercially available, either at local garden centers or by mail order. Varieties that proved troublefree have survived and multiplied. Those that proved disappointing or work-making got ripped out, or retested several years later in another location.

From this experience, I've formed strong opinions about the "best" and "worst" perennials. The "best" are those that stand upright without staking, resist disease and insects without treatment, go without division for at least three years, and look good all season. (A wise old professional in Roxborough once told me he planted peren-

continued

nials not for their flowers but for the way they look all season.) The "best" perennials have no special soil requirements, make a strong visual statement in the mixed border or in front of shrubs, and survive even terrible winters without cover.

the top ten

Here are the *creme de la creme*.

Astilbe - All varieties are superb, even the late dwarf *A. simplicifolia*. An amazing number of pink shades are available, in height from 1½ to 4 ft.

Coreopsis verticillata - Far superior to the commonly grown *C. grandiflora* because it never flops, never needs division, and always sports neat, delicate foliage.

Dicentra eximia - This gem (and its cultivars like 'Bountiful' and 'Luxuriant') never dies back like *D. spectabilis,* even though it's not as impressive.

Epimedium - A wonderful low-growing jewel for shade, this plant should be used more. Blooms can be yellow, white, pink or red.

Geranium sanguineum - This, like all species of perennial geranium, is outstanding: much more refined than tender geranium, and adaptable to sun or partial shade.

Hemerocallis - The ultimate in trouble-free plants, daylilies have two extra advantages: showy blooms, in many shades; availability of many varieties, stretching bloom from April until frost.

Gertrude Jekyll would give a plant only one season to prove itself, or out it went. I'll give it two, thinking that our climate may be an obstacle or that I've done something wrong. After that, if it still sprawls or looks ratty or gets disfigured from disease or insects, out it goes.

Hosta - Completely troublefree and decorative, now available in a wide variety of sizes, forms, and leaf coloring

Iris sibirica - This species is far easier than bearded iris, which I gave up on long ago because of its diseases and short bloom. Though color choice is more limited, Siberian iris has a more delicate flower, and its spent flower stalks are not as unsightly

Rudbeckia fulgida 'Goldsturm' - An impressive and evocative perennial, easily grown in masses for late-summer color. The purple relative, *R. purpurea (Echinacea)*, is not nearly as good, but other black-eyed susan types are excellent

Sedum spectabile - Available in shades of pink, this tough plant will live forever to look good and provide late-season cheer. Most other sedums are troublefree, though not suited to the mixed border.



photo by Randall Mason

The perennial supreme, *Hemerocallis* (daylily) is colorful, indestructible, and glorious for providing a lifetime of cheer.

the not-so-perfect

The "worst" perennials have either a deceptively short flowering time (like poppies) or, more annoying, spread rampantly. Several years ago, two plants of loosestrife *(Lysimachia punctata)* spread to the size of a car in just two years, and took plenty of horsepower to eradicate. Another species, plume poppy, scattered seeds halfway from here to Egypt, and its root was harder to get rid of than unemployed relatives. (Unfortunately, these and other "worst" varieties are sold at garden centers to unsuspecting gardeners – perhaps because they multiply so rapidly.)

good, but flawed

In between the "best" and "worst" perennials are two groups: those that are quite good but flawed in some way; and those that are showy but *seriously* flawed. Such varieties are listed in the table accompanying this article.

Certainly my ratings may irritate or infuriate hobbyists who specialize (in chrysanthemums, for example) and lavish great attention on them. (Charlie Gale will wince at my listing of delphiniums as "too much work"; he forces them magnificently for the annual Flower Show, but he's a professional and has the facilities to pamper this truly demanding perennial.)

Not listed are many species that are just so-so. These include things like *Catananche, Centranthus ruber, Aubrieta, Chelone, Scabiosa,* and others that grow fairly well. But they aren't particularly colorful and don't seem to thrive in our area. Some just languish or mysteriously die out, *yet,* I've seen some that look glorious – like *Potentilla* 'Gibson's Scarlet' – in English gardens. (Kew Gardens is a special place to visit if you enjoy perennials; numerous beds display perennials in family groupings with clear labels like a living catalog.)

For perennial plantings of your own, you can include herbs and native wildflowers. Thymes of all kinds work well, lavender does too, and natives like trillium add interest to the garden. But these are not basic materials nor strong features for most plantings, so are best left for the curious. Some oddities such as *Yucca filamentosa* and *Opuntia compressa* seem out of place to me in our northern climate, but could serve as living souvenirs of a trip to Arizona, perhaps.

Over the years, as my gardens have taken over more lawn area, I've become ruthless in discarding perennials that don't do well. Gertrude Jekyll would give a plant only one season to prove itself, or out it went. I'll give it two, thinking that our climate may be an obstacle or that I've done

something wrong. After that, if it still sprawls or looks ratty or gets disfigured from disease or insects, out it goes. Life is too short to spend as caretaker for faulty plantings that can't make it on their own – particularly since so many outstanding varieties can. Gardening should be enjoyed, not endured.

The author recommends his:

Best Local Sources of Perennials

Ft. Washington Garden Mart
Bethlehem Pike
Ft. Washington, PA 19034
(Many varieties plus herbs)

Russell Gardens
600 New Road
Churchville, PA 18966
(largest selection around)

Waterloo Gardens
136 Lancaster Pike
Devon, PA 19333
(Good general selection)

Best Mail Order Sources

Carroll Gardens
P.O. Box 310
Westminster, MD 21157
(Extensive selection)

Wayside Gardens
Hodges, SC 29695
(Getting better every year)

White Flower Farm
Litchfield, CT 06759
(Expensive but reliable)

The author recommends his Favorite Books about Perennials:

*Hebb, Robert S.: *Low Maintenance Perennials*, Demeter Press, 1975. (Outstanding appraisals; some opinions are disputable.)

*Hudak, Joseph: *Gardening with Perennials Month by Month*, Demeter Press, 1976. (Extensive listings but few evaluations.)

Nehrling, Arno and Irene: *The Picture Book of Perennials*, Hearthside Press, 1964. (Old but helpful because of illustrations and comments on low-maintenance selections.)

*Thomas, Graham S.: *Perennial Garden Plants*, J. D. Dent & Sons, London, 1976. (Published with Royal Horticultural Society, this British book is better and more thorough than most.)

*Wilson, Helen V.P.: *Successful Gardening with Perennials*, Doubleday, New York, 1976. (Not very complete but enormously inspiring and poetic.)

*available at PHS Library

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Eugene W. Jackson is chairman of the Board of Springhouse Corporation, publishers of nursing magazines and books. A member of the American Hemerocallis Society, he's an avid gardener who specializes in perennials (growing over 100 varieties of daylilies). His articles have appeared in *Flower & Garden* magazine, the *New York Times*, and *Family Circle*.

The Author Ranks Perennials

Very Best Perennials
Anenome japonica, excellent late bloom, especially 'Queen Charlotte'
Aruncus sylvester, best in part shade and naturalized settings
Asclepias tuberosa, late starter but foolproof; best massed
Astilbe spp., many varieties; sun or shade
Brunnera macrophylla (formerly *Anchusa myosotidiflora*), always neat
Buphthalum salicifolium, long flowering period; refined
Chrysogonum virginianum, blooms continuously; bright low yellow stars
Cimicifuga racemosa and *C. simplex*, shapely plant; late bloom
Coreopsis verticillata, easily divided; long flowering
Dicentra eximia and *D. formosa*, long flowering; always neat
Epimedium grandiflorum and spp., modest spreader for shade
Geranium sanguineum and spp., outstanding, long bloom; many choices
Helleborus niger and *H. orientalis*, great surprises for winter, early spring
Hemerocallis spp., more varieties than any other perennial
Heuchera sanguinea, many varieties, long bloom
Iris sibirica, reliable, for either light shade or sun
Nepeta mussinii, refined, fragrant for edging
Pulmonaria angustifolia and spp., adaptable; good spreader
Rudbeckia sullivantii 'Goldsturm' and spp., all excellent
Sedum spectabile, first rate and sturdy
Stokesia laevis, long-lived, good for cutting

Good but Slightly Flawed
Aster frikartii, seldom long-lived here
Baptisia australis, showy but tends to sprawl
Centaurea montana and spp., not neat growing
Dictamnus spp., foolproof but slow growing
Echinops ritro, impressive but attracts lice
Euphorbia polychroma, sometimes dies back mysteriously
Hesperis matronalis, looks unattractive as season wears on
Liatris spicata, sometimes sprawls
Ligularia 'The Rocket,' wilts easily
Lythrum salicaria, attracts Japanese beetles
Monarda didyma, colorful but invariably mildews
Paeonia officinalis, top-heavy; unsightly as flowers wilt
Platycodon grandiflorus, tends to lean, even *P. mariesi*
Salvia officinalis, invariably sprawls
Solidago spp., spent flower heads unsightly
Thermopsis montana, not very showy
Thymus spp., not very showy; some die out partially
Trollius ledebourii and spp., slow to establish; not showy

Too Much Work, Though Showy
Anthemis tinctoria, not long-lived, look poor after flowering
Aquilegia vulgaris and spp., leaf liner disfigures; not long-lived
Artemesia spp., not neat; invasive, except *A. schmidtiana*
Aster amellus and spp., need annual division; many diseases
Chrysanthemum spp., need annual division, pinching back, and fertilizer often
Coreopsis grandiflora, needs frequent division; sprawls
Delphinium spp., need spraying, annual division, staking, pampering
Dianthus spp., need lime, seldom look good
Gaillardia aristata, short-lived, attracts insects, unpredictable
Gypsophila paniculata, special soil requirements; hard to place
Helenium spp., need annual division and staking
Iris x germanica, disease-prone; ugly after flowering
Phlox paniculata, beautiful but leans; attracts disease; requires frequent division and dead-heading
Tradescantia virginiana, burns in sun; usually looks messy
Veronica longifolia, tantalizing but seldom looks good

The Worst – Avoid at All Costs
Ajuga reptans, a nuisance; often escapes into lawn
Aegopodium podagraria, impossible to eradicate
Campanula rapunculoides, invasive weed
Eryngium spp., simply ugly
Lysimachia punctata and spp., invasive, difficult to eradicate
Papaver orientale, fleeting bloom, leaning stems, dieback in summer
Physalis alkekengi, rampant spreader
Physostegia speciosa and *P. virginiana*, invasive, leaner
Saponaria officinalis, invasive
Tanacetum, invasive roots; self-sown seedlings a nuisance

More Stories about or including Perennials from Past Issues of Green Scene

List researched by Audrey Manley

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"Prolonging Tulip Time: Stretching Color," Bebe Miles, Volume 1, No. 1 (Sept. '72), page 10.

"Chrysanthemum Red Rover," Joy Mackinney, Volume 2, No. 1 (Sept. '73), page 24

"Succession of Bloom in the PHS 18th Century Garden," Martha Ludes Garra, Volume 2, No. 4 (Mar. '74), page 3.

"Perennials for Pleasure," Volume 2, No. 4 (Mar. '74), page 8.

"*Cimicifuga racemosa*," Gertrude Wister, Volume 2, No. 6 (July '74), page 30.

"The First 200 Years of Daylilies in America," Darrell Apps, Volume 4, No. 4 (Mar. '76), page 7.

"*Veronica*: A Beautiful Weed or a Blue-eyed Nuisance?", Joseph W. Adams, Volume 4, No. 5 (May '76), page 15.

"Dividing Perennials — Heirlooms of the Garden," Ed Lindemann, Volume 4, No. 6 (July '76), page 11

"A Climate for Perennials," John E. Kaltenbach, Volume 5, No. 1 (Sept. '76), page 10.

"Violets," Alexander L. Crosby, Volume 5, No. 2 (Nov. '76), page 29.

"An Author Chooses Garden Favorites – *Dicentra* and *Hypoxis*," Bebe Miles, Volume 5, No. 5 (May '77), page 26.

"*Geranium dalmaticum*," Pat Passanante, Volume 6, No. 2 (Nov. '77), page 32

"Hardy Waterlilies: An Easy Perennial for Your Garden," Sally McKeehen, Volume 6, No. 2 (Nov. '77), page 17

"Our Garden is an Experiment to fill Our Needs and Dreams," Joanna Reed, Volume 6, No. 3 (Jan. '78), page 3.

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"Cyclamen: Hardy and Tender," Helen L. Guy, Volume 7, No. 2 (Nov. '78), page 9

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"The Garden: A Series of Outdoor Rooms," Julie Morris, Volume 10, No. 5 (May '82), page 30.

"Small Moments in the Garden," Julie Morris, Volume 11, No. 1 (Sept. '82), page 3.

"Scented Geraniums," Lorraine Kiefer, Volume 11, No. 1 (Sept. '82), page 7.

"Daffodils at Tollgate Farm," Derek Fell, Volume 11, No. 1 (Sept. '82), page 10.

"Hostas: The New Colored-Foliage Perennials," Warren I. Pollock, Volume 11, No. 1 (Sept. '82), page 21.

"Trench Fever," Lucie B. Steele, Volume 11, No. 1 (Sept. '82), page 28.

"Three Weeks of Color in April: Planning a Year Ahead for Primulas," Howard Roberts, Volume 11, No. 3 (Jan. '83), page 8.

"The Hummocks at Alpineflora," Lee Raden, Volume 11, No. 4 (Mar. '83), page 7.

"Charm in Variety: Plants to Grow with Daylilies," Barbara Bruno, Volume 11, No. 4 (Mar. '83), page 13.

"Trilliums: Some Hardy but Not Frequently Grown in This Area," Dot Plyler, Volume 11, No. 4 (Mar. '83), page 21.

"Hedgleigh Springs, A Garden of Surprises," Erica Glasener, Volume 11, No. 4 (Mar. '83), page 29.

"Daffodils: Bank to Bend and Beyond," Philip G. Correll, Volume 11, No. 4 (Mar. '83), page 32.

"Gardening in Philadelphia and Maine: A Horticultural Balancing Act," Peggy Bowditch, Volume 11, No. 5 (May '83), page 10.

"Gather Ye Rose Hips," Lucie B. Steele, Volume 11, No. 5 (May '83), page 19.

"Say It with a Tussie Mussie: Yes, No or Maybe," Jan Riemer, Volume 11, No. 5 (May '83), page 26.

"Volunteer Gardeners Win National Recognition and Develop a Display Garden," Amalie Ascher, Volume 12, No. 1 (Sept. '83), page 25.

"A Passion Worth the Patience: Passion Flower," Charles O. Cresson, Volume 12, No. 1 (Sept. '83), page 29.

"Sweet Peas," Charles Becker, Jr., Volume 12, No. 1 (Sept. '83), page 34

"Miniature Tree Chrysanthemums of Longwood Gardens," R. J. Armstrong, Volume 12, No. 2 (Nov. '83), page 6.

"Moving to the City: A Rock Gardener's Dilemma," Marnie Flook, Volume 12, No. 3 (Jan. '84), page 14

"Tree House Terrace: A Gardening World in a Small Condominium," Marie Burns Judge, Volume 12, No. 3 (Jan. '84), page 22.

"Reviewing Some Unusual, Selected Catalogs," H. Peter Loewer, Volume 12, No. 4 (Mar. '84), page 28.

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All about the Perennial Garden. Montague Free, American Garden Guild/Doubleday, New York, 1955.

The Book of Perennials, 7th ed. Alfred Carl Hottes, De La Mare, New York, 1950.

Colour in My Garden. Louise Beebe Wilder, Doubleday, Garden City, 1918.

Colour Schemes for the Flower Garden, 5th ed. Gertrude Jekyll, Country Life, London, 1921.

Complete Guide to Hardy Perennials. Frances Perry, Charles T. Branford Co., Boston, 1958.

Contemporary Perennials. Roderick W. Cumming and Robert E. Lee, Macmillan, New York, 1960.

The Garden Bluebook. Leicester Bodine, Doubleday, Page & Co., Holland, New York, 1915.

Gardening with Perennials Month by Month. Joseph Hudak, New York Times Book Co., New York, 1976.

Growing Hardy Perennials. Kenneth A. Beckett, Croom Helm, London, 1981. (Refers to perennials that survive the winter without protection in Britain.)

Herbaceous Perennials. F. A. Giles, Reston Pub. Co., Reston, Va., 1980.

Low Maintenance Perennials. Robert S. Hebb, Arnold Arboretum of Harvard University, Mass., 1975.

The New Perennials Preferred. Helen Van Pelt Wilson, M. Barrows, New York, 1961.

The New York Times Book of Annuals and Perennials. Joan Lee Faust, New York Times Books, New York, 1980.

Perennial Gardens, 2nd ed. Graham Stuart Thomas, J. M. Dent, London, 1983.

Perennials. James Underwood Crockett, (The Time-Life Encyclopedia Gardening series) Time-Life Books, New York, 1972.

Perennials for Trouble-Free Gardening. Alan Bloom, Faber and Faber, London, 1960.

Perennials for Your Garden. Alan Bloom; edited for U.S. gardeners by Derek Fell. North American ed., Floraprint, U.S.A., Chicago, 1981.

Wild Flower Perennials for Your Garden. Bebe Miles, Hawthorn, New York, 1976.

All of these may be borrowed from the PHS Library

Catalogs for mail-order purchasing of perennials

Busse Gardens
635 E. 7th Street
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Anita Kistler, West Chester, PA 696-8021 (small rock garden plants)

Jane Reed Lennon, Box 210, R.D. 1, Morgantown, PA 286-9601 (perennials, wild flowers). Send stamped, self-addressed envelope for current listing

Florence Reynolds, West Chester, PA 696-6397 (perennials)

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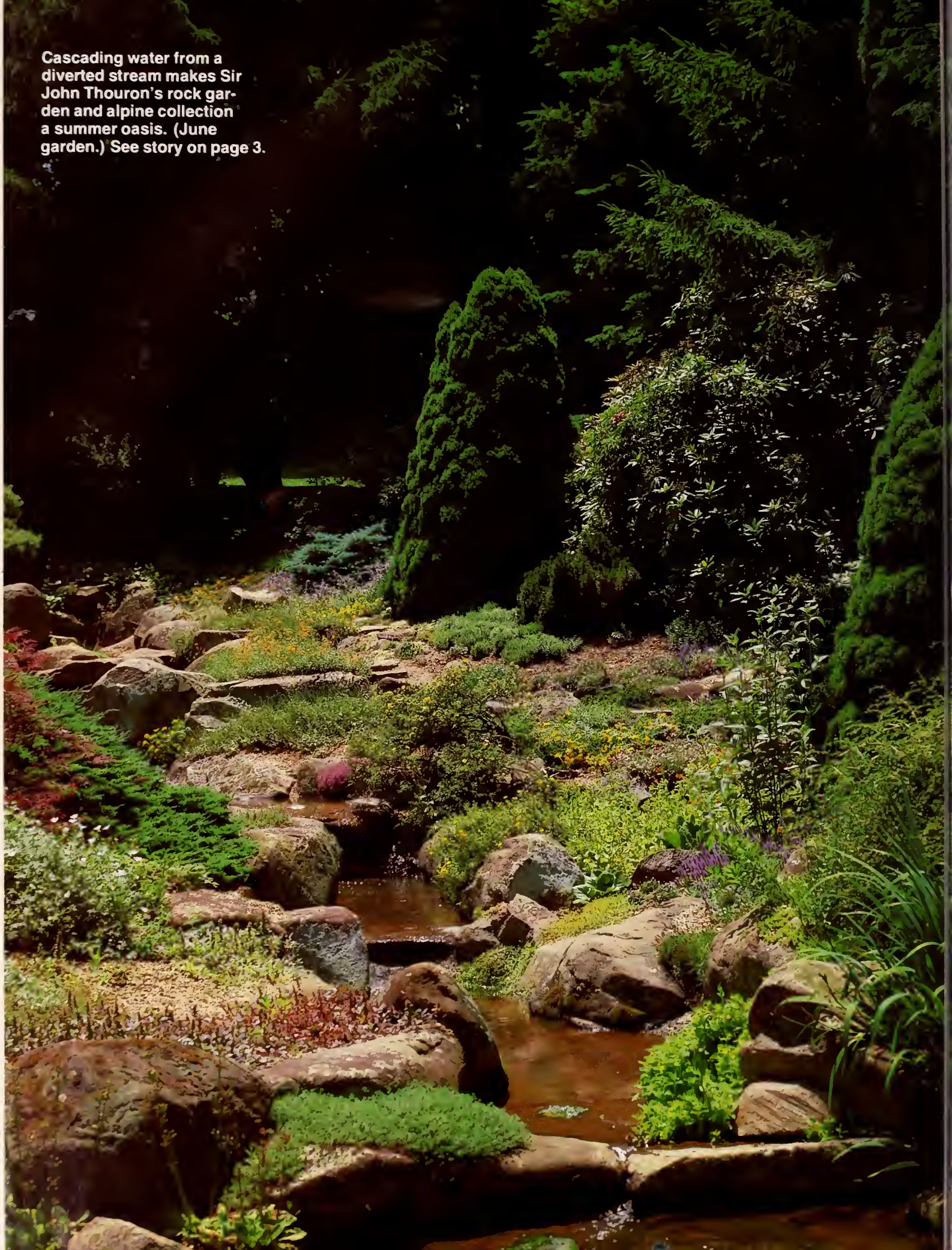
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Cascading water from a diverted stream makes Sir John Thouron's rock garden and alpine collection a summer oasis. (June garden.) See story on page 3.

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